

THE ART OF
HOUSE DECORATION &c

WM SUTHERLAND.



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THE PRACTICAL GUIDE
to the knowledge of the various manipulative processes used in the
ART OF HOUSE DECORATION.

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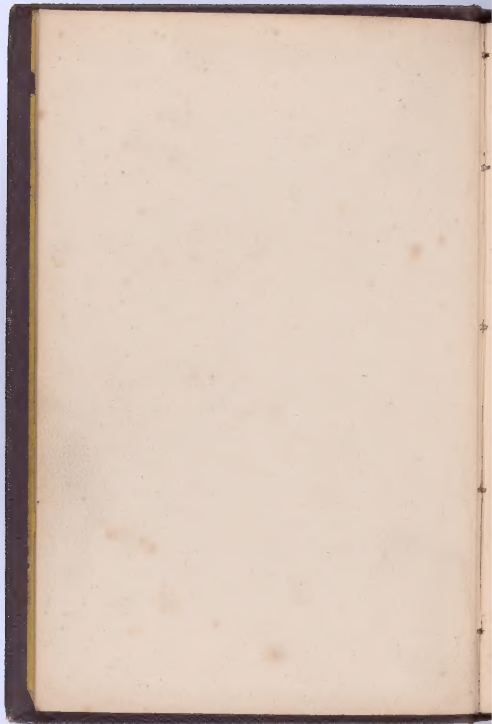
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PREFACE.

IN publishing this little work, the Author has no intention of entering into any theoretical question in relation to ornament or colour. His object is simply to put into the hand of the student the best manipulative processes, and the simplest and most practical methods of executing the various ornamental works required in decorative house painting. The Author has had thirty years' practical experience on the best class of work, and the methods herein described are those which he has found to be the best. He has, therefore, the fullest confidence in placing this work before the student; it will enable him to commence with a fund of practical knowledge he might otherwise spend years in acquiring. It cannot be too strongly impressed on the reader, that, however good and straightforward

any instructions may be, they will be of no avail without a persevering practice of what they teach. There is no royal road to knowledge of any description. Good instructions will help him forward, and clear away many of the difficulties out of his path; but it will depend after all upon his own exertions whether he becomes a proficient or not. Strict attention to the instructions here given, and incessant practice, will alone enable him to do this.

The Author would also recommend the student to study Chevreul on Harmony of Colour, Owen Jones's Grammar of Ornament, Dr. Dresser on Ornamental Design, &c., &c. These works occupy ground to which this book has no pretensions. The Author may, however, be permitted to point out the general principles which govern the application of colour to house decoration, and to quote from the above authors those passages which ought to be known by all who practise the art.

THE PRACTICAL GUIDE
TO THE
ART OF HOUSE DECORATION.

DECORATIVE PROCESSES.

For the purpose of elucidating the various processes hereinafter described, we will suppose that we are conducting the student through the detail of the execution of the manipulative processes used in decoration, and in the imitation of woods and marbles; we shall, by this means, come into closer contact with the reader, and be enabled more clearly to describe what is necessary to be done at each stage of the work in hand.

It is, of course, absolutely necessary that the student should acquire a knowledge of drawing, before he can design or adapt ornament to his use in decoration. We must here, however, for the

convenience of description, presume that he has acquired that knowledge. Ornament, in its application to house and church decoration, has two strongly marked divisions, viz.,—raised or shaded ornament, and flat ornament. The latter is the most extensively used; it has a wider application, and may be done by the aid of workmen, who have no knowledge of drawing, by using stencil patterns. On the other hand, the painting of ornament in relief, must of necessity be done by an artist having a thorough knowledge of light and shade; this naturally limits its practice. With flat ornament, however, one artist or designer may keep a dozen men at work, stencilling, &c.

We will now proceed to describe the method of preparing working drawings, and stencils for working with. As most, if not all, ornament is founded upon geometrical principles, it follows that when an ornament has to be repeated, or has two sides which must be equal in proportion and weight, that some definite system must be used, not only to effect this correctly, but also simply and quickly. This desirable end may be accomplished in the following manner, viz.,—you will require a pair of compasses, T square drawing board, and some sticks of charcoal, which you

will get from any artists' colourman, or you may make yourself in the following manner:—Procure some thin twigs of the common willow tree, strip off the leaves, cut them into convenient lengths; get a stout length of iron pipe, about one foot long, and four or five inches in diameter, stop up one end with clay, put into it as many willow sticks as will fill it comfortably, without pressing too close; then fill the pipe with common fine sand, filling up all the interstices between the sticks, stop the other end with clay; put the pipe into a fire until it is red hot, take it out, when cool the charcoal will be ready for use. To proceed, first get the length and breadth of the space your ornament has to occupy—we will suppose it is a corner ornament you are about to design; take a piece of white lining paper, cut it perfectly square, and of the exact size of the corner, fold it crosswise from corner to corner, open it out and draw a line along the fold; now use the charcoal, and sketch the half of the design upon the one half of the paper; now fold again, lay it on a flat surface, and rub with the hand; unfold the paper, and the design will be transferred to the other half, and appear complete; now mark the outline with black-lead, and brush off the charcoal. This method is

very useful in designing, or adapting any description of ornament. Suppose you are designing an ornament for a panel or pilaster; if it is an ornament which repeats itself, that is having top and bottom alike, and interlacing in the centre, fold into four, and sketch a quarter of the design with charcoal; now fold into half, and rub as before, which will transfer the quarter, making half of the design, then fold the two halves, thus completing the design. If the ornament does not suit you as a whole, you may alter or improve it with the charcoal before using the lead. Should you require an ornament which does not repeat itself, or which springs upwards, varying in its character as it rises, such as a pilaster combining ornament, birds, fruit, and flowers, you must fold the paper once lengthways, sketch upon one half, double, and rub as before; now open, and sketch those objects which are only required single. If your design is to be in relief, prick through the lines, and pounce with powdered charcoal. Whenever you require a straight line, a circle, or segment of a circle, it is always best to use the compasses and square. For all set or geometrical patterns, such as diapers, moulding ornaments, fretts, guilloches, &c., &c., the compasses and square must be used; but there is

much ornament for which free hand drawing will suffice.

To transfer the designs on to stencil paper, or directly to the wall or panel, there are two methods. First, by tracing: rub over the back of the drawing with a little charcoal or loose colour—(in this way, lay the design flat, with the face side downwards, dust a little charcoal or colour upon the back, take a piece of rag and rub the colour very barely over it—brush off all the superfluous colour); now lay this side upon the stencil paper or wall, and trace over the lines with a pointed stick or stile, lift off the drawing, and the lines will appear distinctly traced or transferred to the other paper or wall.

The second method is by pricking and pouncing, and is a very quick and useful process. For instance, you want a centre: take a square piece of paper, fold it into four parts, then carefully draw upon one fourth of it any design you may fancy; then use a fine needle or pricker, and prick through the paper fourfold, and you will have an exact copy on each quarter of the original drawing, thus forming a complete centre, and so on if you fold into six or eight. If you want a corner, fold the square anglewise from corner to corner, and then on one

side draw the design, prick through, and you have the exact counterpart on the other. Or you want a border, being a repetition of one ornament: you will first cut the paper to the required length, then fold it equally, backwards and forwards, occupying as little space as possible at the ends of the folds: now sketch the ornament on one fold, and prick through; you will by this means get a continuous border, as each fold will be a repetition of the original ornament. If you wish to design a corner of the same character as the border, proceed as follows: take a small square of common looking-glass, place it anglewise on various parts of the border, wherever you place it (if in the right position) the reflection on the glass will double the part, and thus form a corner, it will then rest with your own taste as to the best corner you can make from it.

To transfer the design: lay it upon the places to be ornamented, and dust it with a muslin bag filled with powdered charcoal or ultramarine blue; the design will appear in dots underneath.

Of course, it will be understood that when the student has acquired sufficient skill and manipulative dexterity, there will be many subjects which he will be able to sketch in at once without resorting to any of the above aids; but as most ornament is

painted upon a finished dead ground, it will be evident that much skill and care must be exercised to avoid leaving any objectional marks on the work, and therefore it is the practice of the best decorative artists to make a slight sketch, pricked with few dots, and pounced, simply as a guide to the position each part should occupy in the design, but this requires long practice and great skill to accomplish.

STENCILS AND STENCILLING.

Stencil patterns play a very important part in house decoration, and without some such aid the expense would be so great that no doubt it would act as a check upon the progress of decorative art; but with its aid, ornament may be multiplied to any extent, and the cost reduced so materially that it places it within reach of the most moderate incomes. At present it is only used as an aid to decoration; previous to the abolition of the duty upon paperhangings, stencilling was very much used as a substitute for paper, as many as seven or eight colours being used, and laid on with a separate stencil for each colour. The patterns, as a rule, were not remarkable for beauty either of design or colour, and they were not singular in that respect, as even designs for paperhangings were not much to boast of either. The men who executed the work were called slapdashers, and many of them could earn 8s. and 10s. a day, at the time when painters' wages were only about 20s. and 22s. per week. Stencil patterns are now, however, used for a much higher class of work, and when well drawn and

cleanly cut are an invaluable aid in decoration. The tools and materials required, are:—1st, stencil brushes of several sizes, which may be obtained at the painting brush makers; these are round in form, and short in the hair, and ground to a level surface. 2nd, stencil paper; for ordinary work, the common tough drawing paper will do; for all large work, the strong outsides of Whatman's drawing papers answer well. Some persons use tinfoil, but the best and toughest paper for the purpose is made by putting two or three sheets of the best lining paper together with patent knotting (*i.e.*, gum shellac dissolved in wood naphtha); this makes a lasting and useful paper for the purpose. 3rd, a sheet of glass or tin to cut upon; either of these are better than wood, as they offer no obstruction in cutting the curves; the knife is apt to sink into wood, and thus cause obstruction to the free sweep of the required curve. 4th, several round punches of various sizes; these are used for cutting out round dots, &c.

The stencil paper being prepared, trace the design upon it; before you begin to cut the pattern, mark the places where you will have to leave ties—these ties are small portions of the paper left crossing the pattern in places where otherwise a portion

would be cut away, or have no support; also in places where the pattern would be too weak, and be liable to break in working; of course, it is desirable to do with as few of these as possible, thereby saving the labour of filling them up afterwards. Now lay the paper flat upon the glass or tin, and with a sharp pointed penknife cut the pattern out, holding the paper close to the glass with the left hand, and cutting with the point of the knife. It is always best to cut the smallest and most intricate parts of the patterns first, as there is less risk of breaking by doing so. Of course, it will be necessary in some patterns to cut away the ground and leave the pattern; where this can be done, it is much more effective than the other way. When the pattern is all cut out, give it one or two coats of patent knotting. If it is to be used in distemper, this must always be done; it is not so necessary for using in oil colours; one coat is useful, as it enables you to clean the stencil much easier, and toughens the paper.

Much of the beauty of this work depends upon the sharpness and accuracy with which the design is drawn and cut, and great care must be exercised in this respect; straight lines of any length should be cut against a straight edge; a steel one is best, as

the knife is liable to slip into the wood. In cutting circles or curves, the paper must be pressed tight to the glass, the knife-point kept steady upon the line, and the paper gently moved with the left hand in the opposite direction to that in which you are cutting. This, if done properly, will materially assist you in cutting correct curves. The stencil being now ready, mix the colour you are about to use of such a consistency that it will work freely, but with a good body, using it sparingly: always bearing in mind that you will make sharper and cleaner work by using little colour than too much. Now fix the stencil upon the place intended to be ornamented, secure it in its place with needle points (such as gilders use), these may be either used fastened into a small wooden handle, or may be pushed in with a small hollow-handled key. Now dip the stencil brush into colour, rub it on a board to take off the superfluous colour before using, always taking care not to have too much in the brush. Now dab the brush over the pattern until you have covered the whole of the ground seen through it. If you have too much colour in the brush, or it is used too thin, it will be apt to get under the edges, and make shady and ragged work. Clean the colour off the stencil occasionally, else it accumulates, and makes

dirty work. By exercising great care, you may put in three or four colours at the same time, and with the same stencil. When you have put in one colour, cover those parts over with pieces of paper, which you can hold conveniently with one hand, while you put in the next colour with the other hand, and so on for as many colours as are required. When the pattern is very small and intricate, it is best to cut a separate stencil for each colour, but in that case you will require to have guiding points cut in each stencil, so that when these points are placed together the pattern will fit or join exactly. Great care should be exercised to do this properly, as it not only facilitates the execution of the work, but ensures its correctness. All the ties should be filled up while the colour is wet; if done when the stencil colour is dry, it will be of a different tone of colour, which looks bad. When long lines are introduced, it is best to run them with a bevelled edge, straight edge, and lining fitch, which you can purchase of all sizes, and made expressly for the purpose.

ON COLOUR, AND ITS APPLICATION TO DOMESTIC ARCHITECTURE.

It will be evident that it would require a much larger space than a work of this kind will allow, to treat upon the above subject. We can, therefore, only point out the laws and general principles which ought to govern the application of colour to house decoration. In order to do this as practically and clearly as possible, we will take an ordinary dining room as an example, and proceed to paint, colour, and ornament it in the usual manner. In a dining room, the effect sought to be gained by the aid of colour, should be to decorate the ceiling and cornice as richly as may be consistent with good taste, and to paint the walls of a quiet warm neutral colour, to form an appropriate back ground for the display of the rich dresses of the company, and the garniture of the sideboard and tables when set out. The drawing room should be painted with bright, light, and cheerful colours, or pure white and gold may be used. The library should be rich,

warm, and quiet, to harmonise with the rich bindings of the books, &c. The breakfast or morning room should be light, cheerful, and serviceable in colour. Bedrooms, of a light, clean, and quiet tone of colour, with little contrast either in paint or paper. The decorations of any room should always be subordinate to the purpose for which it is used, and any ornament or colour which on entering a room is seen in a prominent manner, before the eye has had time to take in the whole of the decoration, may be set down as objectionable, as it destroys that feeling of repose which is an essential and indispensable quality or portion of perfect harmony of colour and form. These remarks will apply to almost any style of architecture, as used and adapted to English tastes and habits. Some styles of architectural decoration are utterly unsuited to our climate, such as the Pomperian, the Moresque, &c., &c.; we may adapt them, and use what is suitable for our purpose, but to carry them out in their entirety, in our climate, would be simply absurd. We would now proceed to prepare the ceiling and walls. Rub down ceiling and walls with lump pumice-stone, to take off all bits or roughness; paint with a coat of oil colour; when dry, stop up all holes, cracks,

and unlevel places, with putty or hard stopping made with white lead, whiting, and ordinary putty; rub down with sand-paper; now give another coat of oil colour, having a little more body than the last. With about a third part of turpentine, when dry, rub down between each coat, and carefully stop any holes or cracks that may have been missed in last coat. Third coat on ceiling and cornice—white, of a good body, using three-parts turpentine; fourth coat, gloss colour; fifth coat, next day. Flat colour, made with turpentine and white lead, tinted of a light cream colour, made from Oxford ochre and a little vermilion, cornice and centre flower, pure white, or the flat of ceiling may be tinted a light warm fawn colour. The third, fourth, and fifth coat on walls may be painted in the same order as the ceiling, but with a tint of colour made from Brunswick green, and Indian red, and white of course, forming a neutral green. Tints made with pure green alone are very objectionable for walls of rooms, as the largeness of the surface so intensifies the colour, that on looking out of the window of such a room, the natural greens of the fields or lawns will look of a dull brown green hue. In flatting,—*i.e.*, laying on the flat or dead colour,

it is best to use the large round stippling brushes to stipple with, as they are far preferable to any other form; when these are not available, two good flat brushes, tied together, make a very fair substitute. The flat of ceiling being tinted, is ready for ornamenting. The centre and cornice are painted in flat white, as portions of its members will have to remain so, and it will also form a pure ground to place the various tints upon without injuring them; before we give the two last coats to the walls, it is better to finish the upper work, as there is then less danger of injuring them. In pointing out what colours to use, it will be evident that we can only state general principles.

It is a fundamental rule in decoration, that all colouring should assist construction, as well as to produce harmony. This desirable end may be accomplished by strict attention to a few simple rules. (In another place we shall give the proportion which one colour must bear to another to produce harmony). There are two classes of colour used in decoration—the one class appearing to recede, and the other class to advance; and it is in the judicious use of these that construction is either assisted or destroyed. These shades of colour having the properties above stated, it will

be evident that to put a receding colour upon a projecting member of a cornice would be wrong; on the other hand, it would be equally foolish to put an advancing colour into a cove or quirk; in either case, instead of the colour assisting to develope the constructive features of the cornice, it would have the opposite effect; but if you reverse them, and place the colours which recede into the coves, quirks, and backgrounds, and the advancing colours upon the projecting members, you will by that means increase the apparent depth of the sunk parts, and increase the projection of the prominent parts; and however slight the contrast of colour may be, each member of the cornice will be more clearly defined and traced. It will be plain that to enumerate here which colours shall be used for any particular cornice would be absurd, as that must be decided by the form and number of members contained in such individual cornice. We can only here point out which are the receding and advancing colours, leaving their disposal and distribution to the taste and judgment of the decorator; if he will bear in mind the previous remarks in conjunction with the laws of proportion hereinafter given, he will not get far wrong.

Advancing colours are composed of all tints and colours in which yellow forms the prominent feature, such as cream colours, buffs of various shades, mixtures of yellow and red; yellow, red, and green; yellow, red, and umber: yellow, red, and black, &c., &c. The purer and brighter the colours and the more prominent it will appear, so that by varying the tone or intensity, each member may be kept in its proper place. (This leads us to remark here that colours placed upon a ceiling twenty feet high may be used much purer and more decided in tone than if used on one ten feet high. In the first, positive colours may be used in conjunction with secondary and tertiary tints; in the latter, positive colours would be out of place, except in very small quantities.)

Retiring colours consist of all combinations where blue predominates, such as blues and greys, blue in its various combinations with reds and blacks, puce, violet, murrey, and blue greens; it will, of course, be understood that hundreds of shades or tints may be made from the combination of these colours with white. All these are retiring colours, and may be placed in coves, quirks, backgrounds, and the interstices between enrichments. In tinting the cornice, begin with the lightest tints

next the ceiling, gradually deepening in tone until it meets the wall, putting red, which is an intermediate colour, on the undersides, and dividing the colours where practicable by lines of white. Should it be desirable to gild a portion of the work or enrichments of cornice or centre, choose for that purpose that part of the ornament which receives and reflects the light best. Where pure taste is exercised, gold will be used most sparingly. A very rich and beautiful effect may be gained by the use of two or three different colours of gold, viz., regular deep, middle shade, and lemon gold; if used judiciously, and with light colours, the contrast will not be so violent as when the deep gold is used alone; and let it be borne in mind that there is no stronger evidence of a vulgar taste than a too profuse use of gold leaf in decoration; any one may produce a rich and gorgeous effect by the prodigal use of gold and colour, but the true test of the decorator's art is to produce a rich and harmonious effect without the aid of gold. The ceiling and walls being now prepared and coloured, set out the parts to be lined and ornamented, and strike the lines with a chalk line or charcoal, which will dust off when done with; now proceed with the stencilling and ornamental work, as before described

We may here quote with advantage from Mr. Owen Jones's "Grammar of Ornament" (one of the highest authorities we have on decorative art. No decorator should be without the work itself):—

"*Proposition 10.* Harmony of form consists in the proper balancing and contrast of the straight, the inclined, and the curved lines.

"*P. 11.* In surface decoration all lines should flow out of a parent stem. Every ornament, however distant, should be traced to its branch and root.

"*P. 12.* All junctions of curved lines with curved, or of curved lines with straight, should be tangential to each other—a natural law.

"*P. 13.* Flowers or other natural objects should not be used as ornament, but conventional representations founded upon them, sufficiently suggestive to convey the intended image to the mind without destroying the unity of the object they are employed to decorate. (This law universally obeyed in the best periods of the art.)

"*P. 14.* Colour is used to assist in the development of form, and to distinguish objects or parts of objects one from another.

"*P. 15.* Colour is used to assist light and shade, helping the undulations of form by the proper distribution of the several colours.

"P. 16. These objects are best obtained by the use of the prismatic colours on small surfaces, and in small quantities, balanced and supported by the secondary and tertiary colours on the large masses.

"P. 17. The primary colours should be used upon the upper portions of objects, the secondary and tertiary on the lower.

"P. 18. On the proportions by which harmony in colouring is produced (Field's 'Chromatic Equivalents') :—The primaries of equal intensities will harmonise or neutralise each other in the proportions of 3 yellow, 5 red, and 8 blue—integrally as 16. The secondaries in the proportions of 8 orange, 13 purple, and 11 green—integrally as 32. The tertiaries—citrine (compound of orange and green), 19; russet (orange and purple), 21; olive (green and purple), 24—integrally as 64. It follows that each secondary, being a compound of two primaries, is neutralised by the remaining primary in the same proportions: thus, 8 of orange by 8 of blue, 11 of green by 5 of red, 13 of purple by 3 of yellow. Each tertiary being a binary compound of two secondaries, is neutralised by the remaining secondary; as 24 of olive by 8 of orange, 21 of russet by 11 of green; 19 of citrine by 13 of purple.

"P. 19. The above supposes the colours to be

used in their prismatic intensities, but each colour has a variety of tones when mixed with grey or black. When a full colour is contrasted with another of a lower tone, the volume of the latter must be proportionally increased.

"*P. 21.* In using the primary colours on moulded surfaces, we should place blue, which retires, on the concave surfaces; yellow, which advances, on the convex; and red (the intermediate colour) on the undersides, separating the colours by white on the neutral planes.

"*P. 22.* The various colours should be so blended that the objects coloured, when viewed at a distance, should present a neutralised bloom.

"*P. 23.* No composition can ever be perfect in which any one of the three primary colours is wanting, either in its natural state or in combination."

For the rest of the propositions on the laws of colour and ornament, we would refer the student to "*The Grammar of Ornament*" itself, which not only gives the laws and theory, but also the best illustrations and examples of ornament and colour in every style. The work was originally published at twelve guineas, a smaller edition is now published for five guineas, the same in every respect as the former except in size.

CONTRAST OF COLOUR.

The law of contrast of colours is based on the physiological fact that the eye is constructed for seeing white light. It is well known that a ray of white light is decomposed by a prism into an infinite number of variously coloured rays, which are divided into six groups, viz., red, blue, yellow, violet, orange, and green. The first three are termed primaries, as all the other colours are derived from them. The remaining three are formed by the mixture, in pairs, of the primaries: these are called secondaries. Thus violet is formed of red and blue, orange of red and yellow, green of yellow and blue. In order to recombine white light, we mix a primary with a secondary composed of the other two primaries, as red with green (blue and yellow), blue with orange (red and yellow), yellow with violet (red and blue). If we mix two primaries together, we only obtain a secondary; but in mixing a primary with a secondary all the constituents of white light are united. The colour required to

make up, with a given colour, the full complement of coloured rays composing white light, is the complementary of that colour. The complementary of a primary is always that secondary which is composed of the other two primaries, and *vice versa*. Such is the theoretical result.

Now, when a given colour is looked at steadily for a few seconds—suppose it to be red—the eye immediately desires to see white light, and of itself supplies those rays necessary to constitute it; it therefore calls up the complementary of red, which is green—and so with every other colour. This phenomenon is termed “successive contrast,” and affects our view of coloured bodies in a remarkable degree. All the phenomena of contrast of colours depend upon this tendency of the eye to see white light; and one remarkable result is that we can never secure pure primary colours for any length of time without their passing into secondaries.

We are now prepared to understand M. Chevreul's law of simultaneous contrast, which may be expressed in the following terms:—Every colour, when placed beside another colour, is changed, and appears different from what it really is; and moreover, equally modifies the colour with which it is in proximity. Having recognised this great truth,

we have next to consider the nature of this modification, and its influence upon our judgment of the colours of objects.

Place two coloured stripes beside each other—say red and blue. The eye demands the complementary rays necessary to compose white light. The sight of red calls up its complementary, green, which is added to the blue, making it appear greenish; while orange, the complementary of blue, is added to the red, making it appear yellower, or what amounts to the same thing, the deficient primary, yellow, is called up by the eye, and added to the other primaries.

This experiment exhibits the three kinds of contrast:—1. The simultaneous, which includes contrast of colour and contrast of tone. 2. The successive; the colour that succeeds to that reversed, or its complementary. 3. The mixed; consisting of this complementary, added to the other colour reversed. Thus we have seen how the sight of red, calls up its complementary, green, this latter, added to blue, illustrates the phenomenon of mixed contrast.

If the colours placed beside each other are mutually complementary, contrast strengthens and causes them to appear more different than they

really are. Take red and green; green, the complementary of red, placed beside red, increases its intensity; red, the complementary of green, placed beside green, augments its intensity.—*From the Universal Decorator.*

It may be found useful if we here subjoin a few simple examples of harmonious colour contrasts, viz. —

1. Black and Warm Brown.
2. Violet and Pale Green.
3. Violet and Light Rose Colour.
4. Deep Blue and Golden Brown.
5. Chocolate and Light Blue.
6. Deep Red and Grey.
7. Maroon and Warm Green.
8. Deep Blue and Pink.
9. Chocolate and Pea Green.
10. Maroon and Deep Blue.
11. Claret and Buff.
12. Black and Warm Green.

LIGHT AND COLOUR. WHY AND
WHEREFORE.

1. Why is a ray of light composed of various colours? If solar light were one colour only, all objects would appear of that one colour only.

2. Why are some things of one colour and some of another? As every ray of light is composed of all the colours of a rainbow, some things reflect one of these colours and some another.

3. Why do some things reflect one colour and some another? Because the surface of things is so differently constructed, both physically and chemically.

4. Why is a rose red? Because the surface of a rose absorbs the blue and yellow rays of light, and reflects only the red ones.

5. Why is a violet blue? Because the violet absorbs the red and yellow rays of the sun, and reflects the blue only.

6. Why is a primrose yellow? Because the surface of the primrose absorbs the blue and red rays of solar light, and reflects the yellow ones.

7. Why are some things black? Because they absorb all the rays of light, and reflect none.

8. Why are some things white? Because they absorb none of the rays of light, but reflect them all.

9. Why are the leaves of plants green? Because a peculiar chemical principle, called chlorophyll (signifying green leaf) is formed within their cells, which has the property of absorbing the red rays, and of reflecting the blue and yellow, which, being mixed together, produce green.

ENAMELLING AND POLISHING.

In speaking of enamel here, it must be understood as polished paint on the surface of woodwork, such as doors, architraves, window shutters, &c., &c. Enamelling and polishing is an art which requires the exercise of the greatest care and patience in its execution. A little carelessness or inattention at the finish may undo the work of days. The work will not bear any hurry, either in the material or labour, but must go through its regular course, have its proper time to harden between each coat and process; and the rubbing down must be patiently and gently done—heavy pressure will only defeat the end in view. Great care should be taken in the selection of the pumice-stone, both lump and ground, as the slightest particle of grit or hard pressure will scratch, and thus cause hours of labour to be thrown away.

In describing the material used for the purpose, we shall only here describe that which we consider best suited for getting up the white or light-tinted

enamel. There are several kinds of filling up colour used and sold by the colourman, but most of them are of a dark colour, not suited for light work, as they require so many coats of paint afterwards, to get a pure body of colour, that it defeats its own object. In practice, we find it best to fill up from the first with the same tint of colour we intend to finish with, thus forming a solid body of pure colour, which will bear much rubbing down without being shady. For all dark grounds, which have to be finished a dark colour, the black or dark filling is the best.

The tools and material required are as follows, viz. :—

1. White lead ground in turpentine, and best white lead in oil.
2. A clear, quick, and hard-drying varnish, such as best copal, Manders Brothers' white cobourg, and white enamel varnish, &c., &c.
3. Ground and lump pumice-stone, or putty powder.
4. Rotten stone, ground in water or oil.
5. Some white felt, from a quarter to half an inch in thickness, and of the best quality.
6. Several flat wooden blocks, of various sizes and forms, suitable for getting into corners and

mouldings; these must be covered with the felt on the side you intend to use.

7. Two or three bosses, made with cotton wool, and covered with silk.

8. Sponge, and wash or chamois leather.

In order to simplify the description, we will take a plain panel to operate upon. If it is new, give it two coats of oil colour, mixed in the ordinary way; now mix the white lead, ground in turps, with only a sufficient quantity of varnish to bind it with, thinning to a proper consistency with turps. It is as well to add a little of the ordinary white lead, ground in oil, as it helps to prevent cracking. Give the panel four or five coats of this mixture, leaving a sufficient interval between each coat to allow it to dry well. Let it stand for a few days, until it is hard enough to rub down. When it is ready, you may rub it down, first with a soft piece of lump pumice-stone and water, to take off the rough parts. Now use the felt and ground pumice-stone, and cut it down, working the hand in a circular form or manner. You will require to exercise much care and patience to rub it down to a level surface, and without scratches. When you have got it down level, if it is scratched or not sufficiently filled up, give it one or two more coats, laying it on as

smoothly as you can, and rub down as before. If done properly, it will now be perfectly smooth, level, and free from scratches; wash well down, and be careful to clean off all grit or loose pumice-stone. Now mix flake white from the tube with the before-named varnish, till it is of the consistency of cream. Give one coat of this; when dry, give another, adding more varnish to it. Now, let this dry hard, the time for which will of course depend upon the drying qualities of the varnish; some will polish in eight or nine days, but it is much the best to let it stand as long as you possibly can, as the harder it is the brighter and more enduring will be the polish. When it is sufficiently hard, use the felt and very finely ground pumice-stone and water, with this cut down until you get it perfectly smooth; now let it stand a couple of days to harden the surface, then take rotten stone, either in oil or water, use this with the felt for a little while, then put some of it upon the surface of the silk boss, and gently rub the panel with it, renewing the rotten stone as required. It is always better to rub in a circle than straight up and down, or across. Continue this until you have got it to a fine equal surface all over; it will begin to polish as you go on, but it will be a dull sort of polish.

Clean off—if the rotten stone is in oil, clean off with dry flour; if in water, wash off with sponge and leather, taking care that you wash it perfectly clean, and do not scratch. You will now, after having washed your hands perfectly clean, use a clean damp chamois leather, holding it in the left hand, using the right to polish with, keeping it clean by frequently drawing it over the damp leather. Now use the ball of the right hand, press gently upon the panel, and draw your hand forward or towards you; if you do this properly, it will bring up a bright polish on the work, and every time you bring your hand forward a sharp shrill sound or whistle will be produced—if this is the case, you may be sure you are in the right path. Continue this until the whole surface is of one even bright polish. It will be some time, and will require much practice, before you will be able to do this in the best manner; but with perseverance, and practice the difficulty will soon vanish. A soft smooth skin is best for polishing; if it is dry and hard it is apt to scratch. The latter part of these instructions referring to the polishing, will, of course, apply to polishing upon imitation woods and marbles, or on any polishing varnish, using the varnish pure, of course.

In concluding this portion of the work, the author wishes it to be understood that he has endeavoured to use as few words as possible in the instructions given, in order to avoid confusion, and to make his meaning plain and easily understood. He would also wish to say that everything he describes he has himself done, and in the manner herein described; so that he guarantees that if the directions are strictly followed success will result.

DIRECTIONS FOR GRAINING AND IMITATING WOODS AND MARBLES.

Imitation of woods and marbles is a very useful art, and at the present time is almost universally employed in the decoration of houses, churches, public buildings, &c., &c. There are a number of architects, followers of Mr. John Ruskin, the celebrated art critic, who deprecate the use of imitations. They say all imitations are shams, and as such are objectionable. If this principle was carried out, what miserable-looking dwellings the majority of people would have to live in? It appears to me a perversion of taste to prefer rude, uncovered, knotty deal planks, varnished, rather than good imitations. However, I think we may safely conclude that this crotchet will have little power to stop the use of imitations of woods and marbles; for apart from their utility as an aid in decoration and lasting properties, they enable us to enjoy the beauty of the choicest and most beautiful woods and marbles at a comparatively light cost: not only so,

but the practice is a powerful aid in the diffusion and development of good taste; by its aid, thousands of homes are made beautiful, pleasant, and clean-looking, and hundreds of thousands of their inhabitants receive a pleasure of which they would otherwise be deprived if John Ruskin's opinions were strictly carried out. Mr. Owen Jones, Mr. Digby Wyatt, and others of the highest authority on decorative art, say that all imitations are admissible wherever the real wood or marble can be used, or where it is usual to use them in architectural works. This, we think, is a sensible and right view of the subject, as it will be evident to the plainest capacity, that the expense of the real woods and marbles would (as it has done) prevent their use in all but the highest class of houses. So, because we cannot have the reality, we must not have its likeness. Carry the principle out, and how much of the beautiful would be left to the majority of human beings?

LIST OF WOODS AND MARBLES DESCRIBED IN
THIS WORK.

- 1 Plain Oak.
- 2 Overcombed Oak.
- 3 Spirit-colour Oak.
- 4 Pollard Oak in Oil.

- 5 Root of Oak in Oil.
- 6 Pollard and Root of Oak in Distemper
- 7 Do. do. another method.
- 8 Walnut.
- 9 Birdseye Maples in Distemper.
- 10 Do. do. in Oil.
- 11 Satin Wood.
- 12 Mahogany in Distemper.
- 13 Do in Oil.
- 14 Rosewood.
- 15 Hungarian Ash.
- 16 Silver Wood.
- 17 Amboyna.
- 18 New Zealand Yew.
- 19 Tulip Wood.
- 20 Purple Wood.
- 21 Pitch Pine.
- 22 Russian Maple.
- 23 Birdseye Oak.
- 24 Teak.
- 25 Harewood.
- 26 Birch.
- 27 Sycamore.

MARBLES.

- 1 Sienna.
- 2 Italian Pink.
- 3 Breche Violette.
- 4 Bordiglio.
- 5 White Vein.
- 6 Aberdeen Granite, Red.
- 7 Ditto Splashed, &c.
- 8 Grey Granite.
- 9 English Serpentine.

- 10 Irish Green.
- 11 Verd Antique.
- 12 Vert des Alps.
- 13 Vert de Egypte.
- 14 Malachite.
- 15 Rose Antique.
- 16 Brescia Ficario.
- 17 Lapis Lazuli.
- 18 Breche Imperiale.
- 19 Griotte.
- 20 Griotte Fleuri.
- 21 Rouge Jasper.
- 22 Jasper Rose.
- 23 Rouge Roi.
- 24 Rouge Fleuri.
- 25 Rouge Vert.
- 26 Broccatella de Espagne.
- 27 Broccatella Violette.
- 28 Brown Broccatella.
- 29 Conglomerata.
- 30 St. Remy Blue.
- 31 Black and Gold.
- 32 St. Ann's.
- 33 Dove Marble.
- 34 Fossil or Spar.
- 35 Kilkenny Black.

1.—OAK.

Imitation of Oak being so much in demand, it is of importance that the pupil should practise upon it before any other wood; for that purpose you will require the following tools:—

COMBS.

Gutta percha is the best material for making combs; it is cheap, wears well, is easily cut into any size or form, and makes clean work. Purchase a piece of Gutta Percha, one foot square and one-eighth of an inch thick, cut it into squares, varying from one to four inches, and be particular in cutting the edges straight; take one of the squares, and with a penknife cut the edge to the depth of a quarter of an inch, leaving a small space between each tooth. If you cut in a slanting direction each way, you will thereby form the teeth of the comb and the space together; by this method you can make them fine or coarse, to suit your work. For very particular work I use two or three combs made of cork; they are objectionable for general use, as they soon wear out. Take a flat piece of fine grained cork, as free from holes as possible, square it as truly as you can, cut the square edge into teeth to the sizes you want, leaving the teeth as square and evenly cut as possible; these, with two or three of the finest cut steel combs, are all you require. Some grainers use a square cut piece of vulcanised india rubber, cut in the same manner as the gutta percha.

BRUSHES.

1. Common pound brush and sash tool.
2. Long hog's-hair overgrainer.
3. Badger-hair softener.
4. Sponge.

COLOURS, &c.

Vandyke Brown, both ground in oil and water.

Raw and burnt Sienna, ditto ditto.

Turkey Umber, raw and burnt, ground in oil.

Oxford Ochre, ditto.

Sugar of lead, ditto.

Blue Black, ground in water.

Bees' Wax, Linseed Oil, and Turpentine.

The above colours are all that are necessary for any description of oak.

You will require a few smooth boards for practising upon. Bastard mahogany or baywood is the best wood to make them of, as it is not so liable to warp as deal; the best size is about two feet by one foot. Prepare them with four coats of paint in the usual way, taking care to get them up as smooth as possible; the best ground colours are made from the following colours mixed with white lead:—

For Light Oak—Oxford Ochre and White.

Middle Shade—Oxford Ochre, with a little Venetian Red.

Dark Oak—Oxford Ochre, Orange Chrome, Venetian Red, and Burnt Umber.

GRAINING COLOUR.

For light oak, mix two-thirds linseed oil with one-third turpentine; add a little Vandyke brown or burnt umber. If you want a warm colour, add burnt Sienna; if a yellow colour, add raw Sienna or Oxford Ochre. Melt bees'-wax in oil, and mix a small quantity with the colour; this is to prevent the colour from running when you have combed it. You must take particular care that it is well mixed together. Add to the above a quantity of sugar of lead or other dryers, then strain through a double fold of fine muslin.

Your graining colour being now prepared, brush over your board with it, taking care not to put too much on, if you do so you will make dirty work; lay it quite level, and uniform in colour. Now take a gutta percha comb, and draw it straight down the full breadth of the comb, beginning at one side of the board; by slightly inclining the comb you will make the grain finer. Now take a fine steel comb, and go over the whole of the previous

combing in a slightly waving or zigzag manner practice will soon enable you to do this with ease. You must get a piece of real oak, and endeavour to imitate the natural grain; if you can get a piece full of figure or veins so much the better, as it will be the best guide you can have. Your board being combed, you must now take a piece of soft rag, and double it over your thumb, holding it tight on the end of the nail, and try to imitate the figuring on the real oak; you may make some excellent figuring by using the blank end of the steel comb with the rag over it; you will find it very difficult to do this at first, but you must in this, as in everything else, adopt the motto, "that if at first you don't succeed, try, try, try again." Do not practise too much from one piece of oak, as by so doing you are apt to acquire a stiff and formal style, but endeavour to vary it as much as possible. You have now combed and figured it, when dry it is ready for overgraining; for that purpose you will want a sponge, a basin, and plate, fuller's earth, Vandyke brown, a little blue black, some stale beer, badger-hair softener, and overgrainer. Put some water into the basin, dissolve a little fuller's earth in it; wet your sponge with this and rub over your board; now take a little of the

Vandyke brown, with a small quantity of the blue black, and mix them together with weak beer in the plate; dip your overgrainer into this mixture, and draw it straight down or across the board; soften it a little with the badger; this, if properly done, will give it a natural and pleasing appearance. By making the ground and graining colours darker, you can produce any shade of oak in the same manner.

You may also get a very rich effect by glazing the work over with Vandyke brown in oil, and then wiping a portion of the lights out again, imitating the bright lights you see in the real oak. This may be done either in oil or distemper.

2.—OVERCOMBED OAK.

This system has only very recently been practised, and is the best method for getting a near imitation. You will proceed as follows. Rub in your panel, using the graining colour sparingly, brushing or badgering it perfectly level and even in colour; now wipe out the figure or veins as before, then take a broad fitch or a small hog-hair mottler, and draw it across each figure separately; this softens the vein, and forms a sort of dark

shadow round it at the same time. Let it stand until dry; now brush over the panel with the graining colour as before, then take a gutta percha comb and draw it down the panel in quick short curls or waves; now use a comb with a little smaller sized teeth, draw it straight down the panel, holding it a little on the slant; this, by crossing the wavy or curly combing, will cut it into short straight bits, exactly the same as the pores or grain of the real wood. It will, of course, be fine or coarse in grain, according to the degree of inclination in which you hold the comb. When it is combed, take a piece of soft rag, fold it into a sort of roll, and draw it gently over each figure, taking the colour nearly all off, but leaving a faint indication of the grain passing over it, as you see in the real oak. If you practise this method, and do it properly, you will make a nearer imitation than by any other system.

3.—SPIRIT COLOUR.

This colour is very much used in London. It is not so good as oil colour, but is very useful at times on account of its quick drying qualities. It is made as follows:—Grind a quantity of the best

washed whiting in turpentine, mix with it either Vandyke brown, burnt umber, or Oxford ochre, ground in oil, in quantity according to the shade you want; add to this a sufficient quantity of turpentine varnish to bind or fasten the colour; thin it with turpentine; rub your panel in, and comb it quickly, or it will set before you can do so. It dries quite dead when it has stood a short time. Take a flat hog's-hair fitch, dip it into a solution of Scotch soda and water, with a little burnt sienna mixed with it; mark out your figure with this, taking care not to put too much on, or it will run; and remember that wherever the soda touches it will destroy the graining colour. When you have figured your panel, wash off quickly with a sponge and plenty of clean water; the figure will stand out clear and bright. Now go over the whole with a brush and weak beer, and overgrain in the usual way. By this method you may grain and varnish a door in a couple of hours' time.

4.—POLLARD OAK.

This oak is interspersed with broken knots, sap or heart, and figuring, generally arranged in waving and graceful form, with masses of knots

here and there alternating with comparatively plain spaces. To grain this wood in oil proceed as follows:—Rub in with the light graining colour, mix some dark colour with Vandyke brown or burnt Turkey umber, dab this on in masses wherever you want a knot or mass of knots. With the same colour put in a few strokes, in sweeping or graceful lines from one mass of knots to another; now comb it with a coarse comb in the direction of the knots, sweeping round them with the comb; where you cannot do this you must work it out with your nail and the rag, keeping all in an easy flowing style; it is only by constant practice that you will be enabled to do this with freedom. Now figure it, starting from the knots in very fine strokes, gradually enlarging as you get into the plain spaces. To overgrain this proceed as before, and shade across the grain and amongst the knots; generally speaking, wherever there is a twist or wave in the grain there will be a shade. Now take a pencil and touch up the grain about the knots, and put strokes of dark colour across them, to imitate the cracks you may see in nearly all knots.

5.—ROOT OF OAK.

This oak consists of a succession of masses of knots, with the grain twisting and curling round each knot and mass of knots, running into and round each other; what figuring it has is very small, and runs with the grain. It may be done in exactly the same manner as the pollard oak, and enriched by glazing with the dark oak glazing colour.

6.—TO GRAIN POLLARD AND ROOT OF OAK IN DISTEMPER.

Damp down your panel with whiting or fuller's earth, rub in with weak beer and a little burnt sienna and Vandyke brown, very light. Now take an open sponge, have some Vandyke brown and drop black on your palette, mixed stiffish, but separate; dip the sponge into the Vandyke brown, taking up a little black occasionally; dab over the greater part of the panel with this, then take a hog's-hair mottler, wet it, rub it on the wash-leather to take the superfluous water out of it, draw it lightly down the panel in a sweeping or serpentine line, leaving masses of knots here and

there; now take a broad hog-hair fitch, and work round the knots with it, twisting and curling round them, giving the marks you make with it a direction so that they will intersect or work into the previous grain made by the large mottler. You will best understand what I mean if you look at the real wood. When this is dry, take the hog's-hair overgrainer, dip it into a mixture of weak beer and drop black, very faint of course; draw this in a wavy manner across and around the knots, &c., soften it upwards with the badger-hair softener so as to form a dark edge. It will be better now to give the panel a coat of varnish. When dry, glaze over with Vandyke brown or burnt umber, and figure and shade as in the oil process.

Root of oak may be done in exactly the same manner as the pollard oak, and with the same colours.

7.—ANOTHER METHOD OF GRAINING POLLARD OAK IN DISTEMPER.

Damp down your work with the sponge and fuller's earth, mix Vandyke brown with a little burnt sienna, dip a clean sash-tool into beer, then

into the colour, spread it on to your work, using it freely. Now take your tool and a little dark colour, and press it against the panel here and there, making the hairs spread out; then suddenly draw it away, soften it a little with the badger; take a small round hog's-hair quill tool, dip it into dark colour, hold it between your right hand finger and thumb, put the point against your work in the places where you have pressed your large tool, give it a sharp twist; by doing this properly you will form the imitation of a knot. When dry, use the small overgrainer and weak colour; dip the overgrainer in, then draw a common comb through it to separate the hairs; now draw it across the panel, giving it a sort of half circular stroke, slightly zigzag; while it is wet badger it, taking particular care only to use the badger one way, either up or down. By doing this carefully you will form a light and dark grain at the same time. When you have sufficiently practised this method you will be able to produce some very good effects.

We must here again press upon the student the importance of practising from nature; he will then more clearly and easily understand the directions given.

8.—WALNUT.

This beautiful wood has a fine shady mottle, a light undergrain, and a rich, dark, curly overgrain. There are several kinds — English, French, American, &c. They vary some little in their grain, but are nearly all alike in their colour, and may all be imitated in the same manner, viz. :— Ground colour, the same as the dark oak, omitting the yellow and adding a little more burnt umber. Damp down as usual; brush over your panel with weak beer, burnt sienna, and a little Vandyke brown, light; mottle this with the large mottler, soften, let dry; now take some hog's-hair overgrainers of different sizes, dip into a thin mixture of Vandyke brown and beer; overgrain with this, using it rather freely, and soften upwards, only in one direction. While this is wet put in the dark veins and curls with an overgrainer and drop black, using a pencil when the overgrainer is too large. Or instead of following with the dark colour while the light grain is wet, you may let it dry, then wet the panel over with a soft mottler and water, and put in the dark veins and curls as before, softening as you go along. When dry, glaze and shade the work with a mixture of Vandyke brown and a

little drop black, and adding a little indigo here and there. You can also now put in some additional dark veins, if required. This glazing or shading may be done either in oil or distemper. We would take the opportunity to remark in reference to this wood (the same remarks will, of course, apply to all others), that a great mistake is often made, and much of the effect of good work is spoiled, by an overcrowding of the various parts. Many grainers cannot be content until they have filled every panel and style of a door as full of flowery work as it will hold. This is a serious fault, and should be avoided, inasmuch as we lose the effect of contrast and all sense of repose by it. In the same manner as we receive pleasure from the judicious contrast of two colours, the one enriching and purifying the other, so may we experience the same feeling from the judicious contrast of a rich and elaborately worked panel, with quiet and plainly worked styles. Another point we would notice, namely, to take care in all cases to work cleanly; leave the quirks clean, cut all joints sharp and straight, exactly in the same place as the joiner has made them; see that the mouldings are left clear, and always make a slight difference in shade of colour between the mouldings

and panels. If you do not pay strict attention to these matters you will never make a good job. It is always much pleasanter and better to see clean and sharply executed work, if not so good in character, than to see the most talented work executed in a slovenly and dirty manner.

9.—BIRD'S-EYE MAPLE IN DISTEMPER.

This is one of the most delicate and beautiful of woods, and requires great care and cleanliness in working. To imitate it you will require the following tools:—Badger; one four inch hog's-hair mottler; one two-inch do., thick; one one-inch do.; and some camel-hair mottlers; one two-inch sable-hair overgrainer; one one-inch do.; sable pencil. The best ground for graining maple upon is a light cream colour; many grain it of white, but it is apt to look raw and cold. The smoother it is got up the better the work will look when it is finished. For graining with you can either use a mixture of burnt sienna and drop black, or Vandyke brown and burnt sienna, as may suit your taste. I prefer the first, as you can make it as warm or as cool as you like, and vary the tone at pleasure. A cool maple is preferable, as the varnish will in time

make it yellow enough. Damp down your panel as before; dip a large sash-tool into stale beer, then into the colour; spread it evenly on your work, badger it until you get it as uniform in colour as possible; take the large hog's-hair mottler, damp it with clean water; now begin at the top of your panel, and with the end of the mottler touch the panel, drawing it down at the same time for about half an inch, holding it in an angular direction; by doing so you will take off a slanting strip of colour. Go on in the same way to the bottom of the panel, leaving unequal strips of light and shade; now go over this again in the same way, but holding your mottler in the opposite direction; you will form a sort of irregular chequered pattern; lightly badger this across the panel until it appears soft and mellow; now slightly soften in an upward direction. As you become used to the tools, you will be able to modify the figure and give variety. Now take your short hog's-haired mottler, damp it, and with one corner of it take off a touch of the colour on the top of each shade; these are to imitate the bright light, or reflection, that accompanies a knot or bird's-eye. These bright lights or reflections may be put in with the wash leather, in the manner

described in graining maple in oil, graduating the lights by dabbing with the leather. With a pencil and dark colour, form the eye just under the extreme point of the bright light; for common work, a dot with the end of your finger will suffice.

To overgrain this, take a little of the colour and tint it with a small quantity of burnt sienna; you must only have it of sufficient depth of colour barely to show on your work; if too deep it looks coarse. With a pencil and this colour begin to curl a fine line round one of your principal knots, gradually extending from one to another, keeping either in the centre or to the side of the panel, until you have carried it from top to bottom. Now take your pencil overgrainer, dipped in the same colour, and draw it down parallel with your pencil work, and fill up the rest of the panel with it.

10.—TO GRAIN MAPLE IN OIL.

Maple in oil takes considerably more time to execute than in distemper, but, if well done, it is infinitely superior in every respect; the ground should be got up very smoothly, in such a manner that you will not have to use sand paper on the

last coat. Prepare your colour in the same way as the light oak graining colour, using Vandyke brown and a little raw sienna to stain with ; strain it well, taking particular care that it is free from the slightest particle of grit ; rub in your panel with it ; take a damp wash-leather, roll it up tight, and use it as a mottler ; soften well with the badger ; get a pencil stick, cut one end of it into an oval form, wrap a strip of wash-leather round the oval, in such a manner that only one thickness of it will appear round the end of the oval ; tie it fast ; now dip it into dark colour, and dot in the eyes with it, then use the leather on your thumb nail to form the bright lights springing from the knots or eyes ; when dry, you can overgrain it either in distemper or oil.

11.—SATIN WOOD.

The proper ground for this wood is a yellow cream colour, made from Oxford ochre, chrome yellow, and white. The best colour to grain it with is raw sienna, with a slight touch of Vandyke brown and burnt sienna mixed with it. This wood has a great similarity to mahogany in the form of its grain ; if you can grain one well you can the other. Rub in your colour, using beer and a sash-

tool; dip a sponge or wash-leather in clean water, and draw it down your panel, partially clearing off the colour in places as you go on. Now take the mahogany, or thin hog's-hair mottler, and cut out portions of the colour that is left on the panel; in this way you will form the lights or reflections you may see in the real wood, or in a piece of Spanish mahogany, which will do as well; they are just the same, only not so large. Badger it cross way of the panel; you must occasionally use a camel-hair mottler; press it against your work, and draw it down with a slight jerking motion; this will form a very close and regular mottle. To overgrain it, use the mahogany overgrainer, or flat sable (divided with the comb), dipped into a tint of blue black in weak beer. To imitate the curl, or feather, lay on very light colour freely; then take a small tool, or flat fitch, and with colour several shades darker make a succession of half circles, one above the other, beginning at the bottom of the panel, gradually reducing the sweep of the circle as you rise to the top. While it is wet take the mahogany mottler and cut out the lights, spraying them from the centre of the circle each way. Overgrain as before, taking care to run the grain in the same direction as the half circles.

12.—MAHOGANY IN DISTEMPER.

Ground colour made with Venetian red and orange chrome; graining colours, Vandyke brown, burnt sienna, and Victoria lake. This lake is not much known as a graining colour; there is no colour equal to it for mahogany. To grain this wood you must proceed in exactly the same manner as for satin wood, with this addition, that while the colour is wet you must stipple or dapple it all over with the end of the badger, to imitate the pores of the wood; this will give it a very natural appearance. Overgrain with Vandyke brown and blue black.

13.—MAHOGANY IN OIL.

Mix a light colour in exactly the same way as for light oak, using burnt sienna to stain with; rub in your panel with it, mix a dark colour with Victoria lake and Vandyke brown; use this with a small tool, or fitch, to put in the dark shades; mottle it with a piece of stiff card board, or a rag or leather drawn tight over a steel comb; badger it well. When dry, glaze it all over with Victoria lake in distemper, and while wet, stipple with the end of the badger, and overgrain as before.

14.—ROSEWOOD.

Rub in with a light distemper colour, made with Vandyke brown and burnt sienna; take a sash tool and dark colour, made with Vandyke brown and Victoria lake, and put in some broad irregular shades, leaving light spaces running between: now use your overgrainer and blue black, curling or crossing the dark parts, making some straight, others broken, just as you see it in the real wood; where you cannot use the overgrainer with effect, use a pencil; when dry, glaze it all over with Victoria lake in oil, wiping it out in places. This will give it a very rich appearance.

15.—HUNGARIAN ASH.

This is a beautiful wood, as light and delicate as maple, but not so yellow in tone. It is very elaborate, and requires very great care in the working. Its characteristic features are a beautiful silvery mottle, with a curling overgrain, somewhat like the appearance of watered silk or moreen. It may be done either wholly in distemper, or in distemper and oil. Ground colour, pure white. To grain this wood in the best manner, proceed

as follows:—Mix a colour same as light oak graining colour, but rather thin; with a pencil and this colour put in the larger grain in the form spoken of above; then use the pencil overgrainer and the same colour, and run the grain in a wavy form, taking care to follow the undulations of the previous grain; now soften this with a small fitch, and badger; soften to a dark edge. When dry, damp down the panel, and brush over with weak beer and drop black, with a little burnt sienna, only sufficiently strong to shew; mottle it, leaving a light and shadow to each curl or wave of the grain. After it has had one coat of varnish it may be brushed over with a little light colour, and stippled or flogged with the badger to put in the pores.

TO GRAIN IT IN DISTEMPER.

Damp down; use a very light mixture of Vandyke brown and drop black; mottle very carefully and clearly; when dry, use the same colour, with a little burnt sienna added, and overgrain in the wavy form spoken of above, and soften to a dark edge while wet; when dry, wet the panel with a soft mottler, and stipple while it is wet. An inlay

of tulip wood and hare wood goes well with the Hungarian Ash.

16.—SILVER WOOD.

This is another light and pretty wood. It is a species of foreign beech or sycamore, full of bright silvery reflections, hence its name. It has a fine, long, straight mottle, somewhat similar to the mottle you see on fiddle backs, with a very fine overgrain and pores of the same nature as baywood. In colour it is of a bluish grey, and is very useful as an inlay, or in the mass, inlaid with purple wood or ebony. It is grained off a pure white ground. Graining colour, drop black and indigo. Damp down as usual; brush over the colour very light, and mottle with a fine ripply mottle, leaving here and there somewhat plain spaces; when dry, wet with a soft mottler carefully; now use a fine mahogany cutter, and cut out some clean and fine bright lights on the centre of the light parts of the previous mottling. If this is properly done it will give that silvery reflection you see in the real. When dry, overgrain with the pencil and pencil overgrainer, using a light colour made with burnt sienna and a little Vandyke brown, and stipple with the badger while the overgrain is wet.

17.—AMBOYNA.

This wood is full of small twisted knots, and is of a foxy red colour. It is only suitable for use as an inlay, except in very small panels. It may be grained on the same system as the pollard oak, only much smaller in the knots and overgrain, using burnt sienna and Vandyke brown as graining colour, glazing with the same.

18.—NEW ZEALAND YEW

Is another wood of the same nature as amboyna, not so full of knots nor so high in colour, and may be grained in the same way, using Vandyke brown and burnt umber as graining colour, glazing with the same, with a little black added.

19.—TULIP WOOD

Is only useful as an inlay. It is grained of a light mahogany ground, using burnt sienna and Victoria lake as graining colour. The grain runs in stripes, and is sometimes called zebra wood. Rub in with burnt sienna, very light; while wet, overgrain in stripes, using Victoria lake and burnt sienna; while wet, soften in the same direction as the grain, and stipple slightly while wet.

20.—PURPLE WOOD

Is used as an inlay only, and is as its name indicates of a rich dark red purple hue, with very little grain perceptible. It is grained of a dark red ground (Indian red), using Victoria lake and drop black for graining colour; a little Vandyke brown may be used.

21 —PITCH PINE

Is sometimes required to be grained to match the real wood. It is a simple grain, and may be done either in distemper or oil. If in oil, a good imitation may be made by working out the vein, or by using the overgrainer and turps, to open the colour, softening to a dark edge. If in distemper, the pencil and overgrainer must be used.

22.—RUSSIAN MAPLE.

This wood differs from the ordinary bird's-eye maple only in its markings. Instead of the knots or eyes being soft and silky, they are dark and rather long, varying in size from small specks to three quarters of an inch in length. It may be done in exactly the same manner as the bird's-eye, and the knots may be put in with the pencil, using the same colours.

23.—BIRD-EYE OAK

Is a wood only fit for use in small quantities. It is filled with a species of knot somewhat similar to the maple knot or eye, and is called bird-eye oak in consequence. It may be done by putting in the eyes in distemper first, and then brush over the light oak graining colour, and comb it, giving it a slight wavy form in and about the knots.

24.—TEAK

Is the same wood that many of the railway carriages are made of now, and may be imitated in the same manner as pitch pine, but is darker in colour.

25.—HAREWOOD

Is very similar in colour and mottle to silver wood, and may be imitated in exactly the same manner and same form, using an exceedingly fine mottler, and overgraining with Vandyke brown.

26.—BIRCH

Is much used for furniture, and is a simple wood to imitate. It has a large mottle, with a fine overgrain. Ground, same as for light oak. Mottle in the same way as you begin with maple, that is,

cutting off the colour in a slanting direction, but only one way; soften gently, and overgrain. Graining colour, Vandyke brown with a little burnt sienna.

27.—SYCAMORE

Is not often used. It is a simple mottle,* and may be grained the same as silver wood, using Vandyke brown as a graining colour.

When you become a proficient, and can grain the foregoing woods well, you will at once, on beholding a strange wood, be able to see how it should be grained so as to imitate the real. I would again urge the student to procure a specimen of each wood, which he may do by applying to a dealer in fancy woods, or a cabinet maker.

When you have done with your tools for the day, always be careful to wash the mottlers, tools, washleather, sponge, &c., &c., well and cleanly, and lay them by straight; you will thus be able to start with all clean next morning. It is also very injurious to the tools to leave them long in, or to put them away saturated with beer, as mould soon forms, and rots the hairs of the brushes.

In leaving off for a time while engaged upon a door, it is best to wipe off the graining colour from all those parts you are about to leave undone, for if the colour is left on for any length of time, it will stain or mark the place. These small matters are all worthy your attention, as they all conduce to a successful result.

IMITATIONS OF MARBLES.

THERE are two classes of marbles; the first class, from their character and colour, suitable for using in large masses, such as staircase walls, large halls, vestibules, &c., &c.; the other, from the same reasons, only suitable for using in comparatively small quantities, such as in columns, pilasters, skirtings, inlaying, &c., &c. Amongst the first class the following are the best, viz.:—

1. Sienna.
2. Italian Pink.
3. Brecche Violette.
4. Bardiglio.
5. White Vein.
6. Aberdeen Granite, Red.
7. " " Grey.

Those of the second class as under:—

8. Egyptian Porphyry.
9. English Serpentine.

10. Irish Green.
11. Verd Antique.
12. Vert des Alpes.
13. Vert des Egypte.
14. Malachite.
15. Rose Antique.
16. Brescia Ficario.
17. Lapis Lazuli.
18. Breche Imperiale.
19. Griotte.
20. Griotte Fluri.
21. Rouge Jasper.
22. Jasper Rose.
23. Rouge Roi.
24. Rouge Fluri.
25. Rouge Vert.
26. Brocatella de Espagne.
27. Brocatella Violetti.
28. Brown Brocatella.
29. Conglomerate.
30. St. Remy Blue.
31. Black and Gold.
32. St. Ann's.
33. Dove.
34. Fossil Spar.
35. Kilkenny Black.
- And others.

The marbles best adapted for staircase walls, vestibules, halls, baths, &c., &c., are principally

these of a light and pleasing colour, veined or broken up with dark and soft lines or cracks, into large and small patches. Several of the granites are also capable of being used for the same purpose. A wide scope is allowable to the marbler in adapting the marble to his purpose. Most marbles vary very much in the tone of colour; some blocks will be light and soft in their markings, others will be dark and strong in contrast. In imitating them, it is wise to choose a medium tint, and when large masses are done, as in a staircase, it is best to avoid violent contrasts. Wherever there is a block done darker than the rest, it will be seen before them. This is a defect, and should be avoided, as it destroys that flatness which is a characteristic of the real marble. In setting out a staircase for marbling, it is usual to vary the size of the blocks, both in width and length; a uniformity in size becomes monotonous. Large blocks are best. I generally set out blocks on a good staircase about 8×4 , first block measures from the level of floor, including the skirtings. This size takes away all likeness to paper. Never turn an angle or corner with one block; this is simply absurd, which will be evident if we consider that all staircases which are covered with the real marble are

done in veneers; to build it in blocks would require an amount of marble utterly out of the question in this country.

For the purpose of imitating the various marbles, you will require the following tools, &c., &c., viz:—
1. Hog-hair softener, large and small; 2. A variety of coloured crayons; 3. Crayon holders; 4. Several flat tin tools in camel hair, various sizes; 5. Several hog-hair fitches; 6. The feathers from the wing of a goose; 7. Badger-hair softener; 8. Various tube colours; 9. Several sponges; 10. Pencils, swan quills, &c.

As the coloured crayons spoken of above will be required for some of the marbles first described, it will perhaps be as well to describe how to make them, as they cannot be purchased suitable for the purpose, nor of the right colours. The soft black crayon used may be purchased from any artists' colourman. In purchasing them, mind you take only those which are of a dull dead black, if they have the least glaze they will be too hard for working with on paint. All the fancy coloured ones will have to be made as follows:—
Take some of the finest and best pipe-clay (get it from the pipe-makers, that sold in the shops is half whiting), crush or scrape it into a fine

powder; mix some colour, say Indian red, in water, stiff; scrape into it a few shreds of the best yellow soap; use a knife and mix this well with the colour, then gradually add the powdered pipe-clay, until it is of a consistency so that you can roll or knead it well; now roll it into sticks about the thickness of the thick part of a common pipe-stem. A flat piece of wood is useful for that purpose. Cut them into convenient lengths; place them upon a board to dry, in a situation where they will get a gentle heat; if too hot it will spoil them. It is best to try a small quantity first; if they crumble and break, there is not enough clay and soap in them; if they are too hard, and do not work freely, add some clay and colour; when dry, they can be squared by rubbing upon sand paper.

In preparing the grounds for marbling upon, care should always be taken to get them up as level as possible, as nothing adds so much to the beauty of the work as a smooth level surface. If the surface is level to begin with, smoothness or polish may be obtained afterwards, but if it is not level to begin with, no after labour can rectify that defect. For all veined marbles in which the crayon is used, the last grounding coat should be painted with flat colour, and stippled; the stippling gives a key for the crayons to bite.

1.—SIENNA MARBLE

Is a useful and very favourite marble. It is pleasing in colour, having in its composition a rich variety of tones of yellows, reds, greys, and purples, softly blended, and its veins or markings are pleasing in form.

Ground colour, pure white, stippled and dry. Mix a working ground colour; a light buff or medium shade of the marble, of pure linseed oil, white lead, and Oxford ochre, with a very little vermilion in it, add a small quantity of sugar of lead as a drier; let it have a tolerable body. In rubbing in, or painting with the colour, you must use it very sparingly. Mix a little vermilion in a pot or cup, with turpentine, add some of the ground colour to it; do the same in another cup, but instead of vermilion, mix a darker shade of the same tone as the ground colour, with ochre and vermilion. You will also require a few neutral tints, made from Indian red and ivory black, or ultramarine blue, mixed with turps and white, and used thin; also a thin dark yellow made with Oxford ochre alone, thin with turps; also two crayons, one black, and one made from ivory black and Indian red. We will presume you are ready to

begin. Rub in your ground colour very bare; dip a large feather into your darkest neutral tint, with this form a leading vein right across your panel or slab, giving it a broken or irregular appearance; strike a few straggling veins from this; now use your feather and light neutral tints, and put in some smaller veins, breaking it into small and large irregular patches on, or springing from, the leading vein. Avoid as much as possible giving it a formal appearance, which so many grainers affect, as it is not natural. Always remember this, that there is very rarely, if ever, a circle, a square, or a straight line in any marble. Now take your coloured crayon, and mark out the principal veins in that irregular broken form you see in the real marble, and making the lines heavier or lighter, according to your own taste; you will be able to do this by merely pressing lightly or heavily upon your crayon; now put in a few darker veins with the black crayon in and about the principal or leading vein; now take a flat tin tool, and fill in a few of the patches or broken pieces with the dark shade of ochre and vermilion, not filling them entirely, but leaving an irregular margin; now use the feather and thin ochre tint, and break up the whole with light

veins across the patches. You will now proceed to soften and blend these, one into the other; in doing this you must only use the ends of the hog-hair softener, just barely touching it, so as to leave every vein clearly defined and nicely blended, and not smeared one into the other, out of all form. You may produce this very undesirable result either by softening too much, or by putting too much ground colour on in rubbing in; either is to be avoided, as it utterly spoils the work. To finish this, you first let it dry, then mix up some very thin whites with turps; dip a large feather into this, and scumble over the panel or slab with it, using it freely, and softening as you go on; draw it irregularly across and in and amongst the veins; put in here and there [some transparent bits of white, shaded or blended with a tint of bluish grey, softening while wet; now glaze here and there about the leading vein with the darker shade of ground colour and strong warm yellow; always put the deepest tones of colour on or resting on the dark vein.

2.—ITALIAN PINK.

This beautiful marble is a member of the Breeche family, and seems, as all of them do, to

have been at one time in large sheets or slabs, then to have been broken up again, as ice breaks up into all sorts of sharp angular pieces, some large, some small: the smaller pieces seem to have been floated or washed in between the larger ones, filling up the interstices formed between the larger fragments, and so been again petrified. From a long study of the nature of marbles, I am inclined to think that it is in some such manner that all marbles have been formed. Italian Pink differs from Sienna both in colour and form. It is a capital marble for a staircase. To imitate it you will require five different colours of crayons, viz:—

1. Black.
2. Dark colour, made with drop black, Indian red, and ultramarine blue, a dark purple brown.
3. Made with Indian red and light red.
4. Indian red and Oxford ochre.
5. Made with Oxford ochre and a little orange chrome, with a touch of Indian red, forming a light yellow hue.

Ground colour, white, dry, and stippled. Mix the working ground colour of pure linseed oil and best white lead, or flake white stained to a very light pink with vermilion. Rub in with this very bare of colour. Now form one of the leading

veins, and a few of the large angular patches, with the black crayon; follow with the next darkest crayon, breaking the slab up into large and small patches in and about the black veins, into still more angular and irregular patches, small and large, the small running in between the large ones; now use the red crayon, and go on as before, but breaking further away from the dark veins; follow with the others in the same manner, breaking up some of the large patches with the light yellow crayon; now mix vermilion with turps, add a little of the oil ground colour to it; mix ultramarine blue in the same manner, using both thin; now take a flat camel-hair tin tool, and the tint of thin blue, and fill in a portion of the large and small patches, and put in a touch here and there amongst the veins, very light; use the vermilion tint in the same manner; now gently soften a little, not fully; mix a little Oxford ochre with turps in a cup, dip a feather into this, and put in some fine veins in and about the small patches, and across the larger ones, gradually breaking away into the large and comparatively plain spaces. Now soften with great care, using the hog-hair softener first, and badger-hair to finish with, bearing in mind what we have before said on this

part of the process. When dry, scumble with the feather and thin white; some of the patches may be part painted in with flake white. When this is done, take a tin tool, dip it into the thin yellow veining colour, open it with an open toothed comb, then draw it across some of the patches in a curved form, and with another tool, use thin purple lake in the same manner, very light and thin; of course, this must only be done on a few of the patches. If properly done, they will look something like cornelian.

3.—BREECHE VIOLETTE.

This is another of the same nature as the last, and may be worked in exactly the same manner as Italian Pink, but with the following difference, viz.:—Make the oil ground colour of a light warm grey tint, with ultramarine blue and Indian red, or vermilion; use the same crayons, and in exactly the same order, with the exception of the yellow one, which you will use sparingly; feather in the light veins with a mixture of ultramarine blue and Indian red; when dry, scumble with white, and glaze here and there with purple lake and blue, thin and transparent.

4.—BARDIGLIO

Is another marble, which, if veined lightly, may be used for staircases. It is of a pearly grey hue, with light grey and black veins, and may be imitated as follows:—White ground, dry, and stippled; rubbing in colour mixed as before in oil, and of a light bluish grey; mix a stronger tint of grey with a slight touch of Indian red in it; use a flat tool or fitch, and put in some long narrow patches, and numerous small ones, all running in one direction; now take the black crayon and mark in the veins, enclosing the dark patches, and crossing them until you have broken up the whole of the slab with the veins; now with a dark grey or lead coloured crayon, put in some light veins, and soften with the run of the veins, and but slightly across; when dry, scumble with white.

5.—WHITE VEIN.

This marble may be done on the same system as the last, using the black crayon to put in all the principal veins, and using the feather and light grey for the lighter veins; soften as before. A good effect may be got by working it rather strong in the veining, and when dry, painting over the whole with thin white, and stippling it with a brush. It gives it a very stony effect.

6.—ABERDEEN GRANITES.

Granites being used for staircase walls, and in large masses, we will next describe the method of imitating them. There are two processes in use—that by splashing and that by sponging. I give the preference to the sponge, but the two may be combined with advantage, so it will be necessary to describe both.

SPONGES.

Purchase a large piece of coarse sponge. While it is dry, cut it with a sharp knife into square and oblong pieces, some large and some small, convenient for working. Some you will require very small to get into those corners and other places where the larger ones will not enter. With the sharply cut square edges you will be able to get close up to the moulding, &c., which you could not do with an irregular piece. Now wet and wash them, and get out all the sand and grit; let them dry; you will now be able to see what sort of a form they are. Some of them may possibly do to use as they are, but the majority of them will require to be cut and burnt to the form required, which you will do as follows: use a red hot wire, and burn holes into the sponge wherever it is

required; some may be cut away with a pair of scissors, giving it a ragged form. As you go on try them with a little distemper colour, and alter as seems best.

The best method of imitating the red granite is as follows:—The slab having been got up with a white ground, mix flatting colour as usual; stain it to the middle tint of the granite with light red or burnt ochre; Venetian red will answer the purpose. Paint over the slab with this; let it set a little; now dip an open sponge into a mixture of drop or ivory black and turps, with a little Japan gold size to fasten it. Dab the sponge on to a board or palette to take off the superfluous colour, then go over the whole of the slab with it, touching it lightly with the sponge, and giving the hand a slight twist at the same time; take another sponge and a thin mixture of a blue grey, and go over again with this; then use white in the same way. Now mix a tint of colour of the same shade as the darkest tint of red, or the prevailing colour of the granite you are imitating; use this colour freely, and with a good body, covering the whole of the slab in a very regular manner, in order to make it uniform in colour; now spurt or splash in some small spots of white very lightly.

7.—SPLASHED GRANITES.

The splashed granite is done as follows:—The same ground and colour is used wet, as there is less danger of its running. Get a short haired pound brush, dip it into the black; hold in the left hand a piece of wood or short thick stick, and strike the brush against this, the concussion will throw out the colour from the brush, and it will fall in round spots upon the slab. Follow on with the other colours in the same manner and order as before.

Another Method.—Take a short stiff flat tool, something like a large mottler in shape, but with considerably less bristles in it, and five or six inches broad; take a flat piece of wood with a strip nailed upon one edge, and standing about half an inch above the flat of the board; now dip the tool into colour, press it against the raised strip so that the bristles will spring over it, in the act of springing the bristles will throw the colour in spots on to the slab. There are hand machines made on a somewhat similar principle which answer the purpose well. You will readily perceive that it is not possible to produce that irregular broken form characteristic of most granites by the splashing process, but some of them may be done with it.

8.—GREY GRANITE.

This may be done in exactly the same manner, using the black, white, and shades of grey in the same rotation as described with the red granite.

There are a great variety of granites varying in colour and in the size of the spots, from very large markings with patches of solid white, to the very smallest spots.

It may be as well that we describe here those marbles which have an affinity in their general appearance and method of working to the granites, amongst which are the Egyptian porphyries, and our English serpentines, which are so much like the porphyry that they may be called English porphyry, and of which so much use is being made by architects.

8.—EGYPTIAN PORPHYRY.

This marble may be imitated in part with sponge and part splashed. It is of a very deep red or purple brown hue. Mix a rich dark ground, flat, with Indian red and black; on this sponge in black; then splash in vermilion in small spots; then transparent white; follow with very small spots of solid white. Another colour of porphyry

is of a deep rich yellow brown. Mix a ground colour from burnt umber, orange chrome, and Indian red; lay in as before, use sponge and black first, second colour splashed, a brighter and lighter tone than the ground colour; follow on with thin, transparent, and solid white. There is also a rich dark green porphyry, which may be done in the same manner, using shades of green on an invisible green ground, and Indian red instead of vermilion spots.

9—ENGLISH SERPENTINES.

Our English serpentines appear to me to be of the same nature and closely resemble the porphyries. They comprise in colour a variety of reds, browns, several shades of green, purple, &c. They are found in the vicinity of Penzance, in Cornwall. They are distinguished from the granites by their richer colours, and a white vein, or thin streak of white, which crosses the slab. This streak is rarely continuous, but is often broken into short lengths, and is seldom above a quarter of an inch in width. The whole of these may be done in exactly the same manner as the porphyries, black and white being a never failing constituent of all colours of granites, serpentines, and porphyries.

10.—IRISH GREEN OR SERPENTINE.

This is a serpentine of a different class altogether to the foregoing, and derives its name from the fact of its veins and markings flowing in a serpentine form, and is an Irish marble. It is very rich in its colour and markings, and is imitated in the following manner:—A dry white ground, flat; mix Brunswick green in boiled oil and japanner's gold size or quick varnish, add a little Prussian blue, mix this so that you can use it freely, and thin enough to be transparent; rub in with this; now dip a large feather into turps, draw this across the slab in a serpentine or wavy form; have some clean rag ready, and as soon as you have opened it with the turps, gently dab it with the rag, this will prevent it running out of form, and will break up the veins into various shades of light and shade; now take a fitch and turps, and still further open the veins here and there, cleaning it with turps, and wiping out with the rag when required; when dry, glaze over with a mixture same as the first, rubbing very bare, and stained with Antwerp blue and Italian pink, or yellow lake, adding darker shades of green here and there, scumble with white, and touch up with solid colour.

11.—VERD ANTIQUE.

Verd antique is a very rare and beautiful dark marble, of a rich dark green hue, filled with various sized patches and spots of black, white, and transparent green. It is imitated in the following manner:—Ground colour, a dark invisible green, mixed flat, and stippled; mix several shades of green, the darker from Brunswick green and white, the lighter from chrome green and white; take a feather, and dip into the darkest green, and feather over the whole of the slab with it in a broken, streaky form, leaving innumerable small spaces untouched; follow in the same manner with the lighter shades of green (it will be well to add to the above colours a little quick gold size, if you follow quickly with the various tints, as it will prevent them from running altogether); finish with thin white; when dry, mix a semi or half-transparent colour from green and black, use it thin, and with this, and a flat tin tool, mark in some semi-transparent patches, principally oblong, and running with the run of the veins or previous feather work; you must see the under work through it; some of them make part round, some angular. Take quick drying drop black, and put in a num-

ber of various sized black patches, from half an inch to two and a half in size, and of a broken form, grouping them, and giving them a certain lead in one direction; next put in some white patches, smaller than the black ones, and of a sharp broken form, running in and about the black ones, and some on the transparent ones; some of these must be semi-transparent, some solid white, others slightly tinted with yellow and pink—very slight. Now take a swan-quill pencil and a transparent green, and cut round the whites and on to them, making them sharp and decided in their forms; when dry, glaze here and there with transparent green made from Antwerp blue and Italian pink or yellow lake.

12.—VERT DES ALPES,

Or Pyreneean green, is a dark green marble, with light green veins running across it, interspersed with white on the green veins, and crossing them. It has a very rich small under veining, and may be imitated in the following manner:—Dead black ground; use the feather and a dark green made from Brunswick green and black, feather in coarsely and in one direction; do the same with a green made with Brunswick green and a little

Indian red; now take pure white, thinnish, and with a long haired swan-quill put in some irregular veins across the previous feather work, these veins will vary from a fine line to half an inch or an inch in width, very much broken and irregular; now use the end of the feather and white, and put in some straggling veins running in the same direction, and connecting the whole together in a broken manner: when dry, glaze over with a mixture of Antwerp blue and Italian pink, just of sufficient strength to give the white veins a green tinge; wipe with a rag some of this glazing colour off the white veins in places; soften and touch up the white veins here and there with pure white.

13.—VERT DES EGYPTE,

Or Egyptian green, a very beautiful green marble, very full of light transparent green and white veins, with here and there in the small under veining touches of red, which gives it a soft harmonious effect. Ground colour, black or invisible green, dead or flat; use a very open sponge, and put in a dark green made from Brunswick green and a little burnt umber; now use a lighter green made from Brunswick green alone; next

dip the sponge in black and dab a little in here and there; use Indian red in the same manner; these must be used sparingly; when dry, take the feather and a light green semi-transparent made from chrome green and white, and go over the whole of the panel in one direction, in a broken irregular form, leaving much of the under work to be seen; make it a few shades lighter, and go over the previous work in a slightly opposite direction, not straight, but having a sort of broken lead in one direction; this you will effect by lightly working the feather backwards and forwards, and wriggling it as you go along; now take the feather and pure transparent white, and work lightly over the whole, using the pencil to put in a leading vein, and work round the small patches of black and red; when dry, glaze here and there, with a thin transparent green, cutting close up to the white and other light veins; touch up the whites with solid white in places.

14.—MALACHITE.

Most visitors to the International Exhibition of 1851 will remember the magnificent doors in the Russian department, formed of this marble; they

consisted of a very large number of small pieces, ingeniously joined together so as to appear as one slab. Malachite is a natural carbonate of copper, varied in aspect by the presence of lime, &c., and often darkened in parts by the conversion of the carbonate into the peroxide of copper. It is very rarely found in large pieces, consequently, on being joined together, it has the appearance of a succession of irregular rings or circles, one within the other, in effect somewhat like the interior of a large onion when cut in half, but more opaque. It may be imitated in the following manner;—Ground colour, almost white, made from emerald green and a little Antwerp blue and white; the ground must be dry and gloss colour; mix a transparent green with Antwerp blue and yellow lake, add quick gold size or varnish; use a one inch camel-hair or sable overgrainer, dip it into turps, open it with a large comb, and form a succession of irregular rings on the work; use a small round softener, and soften outwards from the centre of the ring in every direction. If inclined to run, dab it lightly with a clean rag; where the overgrainer is too large to complete the circles use the pencil to piece out with; when dry, touch up with the same green, and scumble with thin white.

15.—ROSO ANTICO.

Rose antique, as it is sometimes spelt, is a very beautiful yellowish marble, with rose coloured veins, broken up into small patches, with here and there a black vein, and many grey and white patches. White ground, dead and stippled; rub in with oil colour mixed in the same manner as for sienna, but not so yellow, more of a stone colour; rub in some darker patches here and there, mixed with Oxford ochre and a little red; now use a crayon made with Indian red and a little Victoria lake with it, and break up the slab into small irregular pieces, having a lead one way, and with numerous touches or small veins; now put in a few very fine black lines as cracks; mix white with ultramarine blue and a little red, to a pearly grey hue; feather in some of this here and there about the veins; put in some white in the same manner; now soften carefully; when dry, glaze over some of the patches with a darker shade of the ground colour, and touch up the whites and greys, making some solid, some transparent.

16.—BRESCIA FICARIO.

This is a very rich marble suitable for panelling, &c. It is full of large and small patches of pure

white, interspersed with patches of dark and light purple, with black, brown, and green veins, and may be imitated as follows:—Ground colour, flat white, dry and stippled; rubbing in colour made with refined or clarified linseed oil and flake white, add a very little sugar of lead as a drier; rub in very sparingly with this; use the black crayon, and mark out the general features of the slab, forming the larger patches of an oblong form and round, or with broken round ends, using the crayon lightly; now put in some large and small patches of reddish purple, not filling them up entirely, but leaving spots and small patches of white in amongst them; now use a crayon made from Brunswick green and Indian red, having a greenish hue, and break up the interstices between the larger patches into small ones, interspersed with touches of the purple, throwing a little purple here and there upon the large white patches; then use the brown crayon and still further break it up; now soften carefully; when dry, brighten up some of the white patches with solid flake white; have a little transparent green and glaze in amongst the veins here and there with it; soften as you go along; now touch up amongst the veins to give it dep.h. and scumble with thin white.

17.—LAPIS LAZULI.

This beautiful blue marble is very rare, and is suitable for inlaying only. The finest ultramarine blue is made from it, which blue is only used for picture painting, the ordinary ultramarine of commerce being a very recent discovery. This marble presents no very decided character in its markings, it is veined with a kind of gold ore, interspersed with softened blots or patches of graduated white and blue. It may be painted off a white ground, thus;—Rub in with pure ultramarine blue, mixed in quick size or varnish, throw in a little turps, and dapple with the rag; when dry, glaze with some of the rubbing in colour in parts; put in a few different sized spots of white, softening them while wet; when dry, brush over with egg size, same as preparation for gilding; take quick or slow gold size, put in some veins of an irregular form and of various thicknesses, and running all one direction; when ready, either bronze or gild these; then take a dark vein colour, made with burnt umber, Oxford ochre, and a little red; with this colour edge and break up the gold or bronze veins, giving them that rugged broken appearance which most metallic ores have when in their natural state.

18.—BREECHE IMPERIALE.

This marble may be done in exactly the same manner as Italian pink, and broken up in the same form, it being of exactly the same nature, only darker in all its parts. The difference in colour is as follows:—Ground colour, as before, white; working oil ground colour made from light red and white with a little vermilion; a strongish pink; a blue grey, made with ultramarine blue black and a little Indian red; for the dark patches mix a dark tint from Indian red, black, and white; scumble with white as before.

19.—GRIOTTE.

Griotte is a very rich dark red marble, cut up with black veins into innumerable small oval patches, heightened with bright vermilion spots on some of the ovals, patches of solid and transparent white and grey, appearing as if the dark red had flowed upon the white. This appearance is in fact characteristic of most marbles. It may be imitated either on a wet or dry ground. Ground colour made with Indian red, black, and a little white, in tone like the middle tint of the marble; vein with the black crayon; when veined, put in some spots of vermilion with a swan-quill pencil or a

fitch; now soften carefully with the ends of the hog-hair softener; dip a rag into turps, and wipe out small patches of white here and there; when dry, touch up these with bluish grey and solid white.

20.—GRIOTTE FLEURI.

This marble is of the same class as the last, and may be done in exactly the same manner and form. The difference is simply that the latter is more flowing in its character; the splashes of white, blue, grey, and vermilion are much larger and brighter.

21.—ROUGE JASPER.

Rouge jasper is a very richly coloured marble, and may be used for columns, pilasters, &c. Ground colour, a light green drab; mix together Indian red and Victoria lake, with a little oil and quick size or varnish, so that it will set; with this rub in several large and small patches, inclining to a circular form, using the colour sparingly; mix a few olive green tints with white, blue black, raw sienna, and a little red, and several shades of grey made from white, ivory black, and a little blue; place these conveniently on your palette, with a little Oxford ochre; dip a feather into the

turps, then into the olive tints, and run it between, and round, and across the patches of red, blend these well; then go over in the same way with the grey tints; when dry, glaze over the grey and olive tints with pure white in places, making them solid in parts, in others transparent; soften and blend well; glaze the dark parts here and there with purple and crimson lake; while this is wet, take a feather or small overgrainer dipped in very thin white, and draw it over some of the smaller of the dark patches, giving them the appearance that some pebbles have when cut and polished; now lay on some broad veins of solid white with a swan quill.

22.—JASPER ROSE.

This beautiful marble may be done in exactly the same manner as the rouge jasper, only worked much lighter and purer in the reds, using more yellow and olive tints; glazing in parts with rose madder and crimson lake, transparent. It is similar in form, only not so large and bold in its markings.

23.—ROUGE ROI.

Rouge roi, or royal red, is a very useful marble for columns, pilasters, panels, or inlaying. Its

prevailing colour is a rich red brown, varying in tone from a deep rich colour to a light fawn coloured red, and interspersed with large and small patches of blue, grey, and white. It may be done in two ways. The best system is as follows:—Ground colour, dry flat white, or light grey; mix Indian red and burnt Oxford ochre together, making a light red of a yellowish tone; use thinners of boiled oil, turps, and a little quick size as driers; rub the panel over with this, using it rather freely; mix a darker red with Indian red and black, rub over a portion of your slab with this, on those parts you want to be heaviest in colour; now get a piece of stiffish paper, crumple it up in your hand, dip it into turps and stiff black, and dab it on to the slab here and there; have in your left hand a piece of rag, gently dab the colour with it, to prevent it running, and to put in figures; go over again with a strong blue grey colour in the same manner; now use clean turps, with the paper and rag, and open out those parts you wish to be lightest; you will do this by putting on the clean turps with the paper and dabbing with the rag, wiping out here and there a portion; now take a tin tool or fitch, dip it into turps, and run it across the slab in an irregular broken form, dabbing it with the rag;

when dry, touch up the whites, and greys with transparent and solid whites; now you must use glazing colours, one made with burnt sienna and Indian red, another with Indian red and black, and one Indian red alone; glaze over portions of the slab with these, the first for the light parts, the second and third for the dark parts, and cut up to the edges of the whites and greys with them, making it appear as if the whites and greys were underneath the other colours; if this is done properly, you will get a very natural effect. The other system of imitating this marble is used by many, but it is not so effective; it does not get that depth and variety which is produced by the first method. Paint the ground with a middle tone of red; when dry, put in the transparent greys and whites, and put in the solid whites; when dry, glaze in with the tints of red, as before.

24.—ROUGE FLEURI.

Rouge fleuri is the same marble as rouge roi, but the splashes of white and grey are larger and more numerous, with spots of red upon them, giving them the appearance of flowers, feathers, &c. It may be done in exactly the same manner, splashing the red spots at the finish.

25.—ROUGE VERT,

Or red green, is a red marble with veins of green running in one direction, and veins of solid and transparent white running in the opposite direction. It is done on a rich red brown ground, made from Indian red and black, with a little white : the ground dry, dead, and stippled ; mix a semi-transparent green tint made from Brunswick green and white, used thin ; with this and a feather put in the veins running all in one direction ; now use a lighter green, but more opaque, and feather over the previous green with it ; when dry, take a fitch or tin tool, and transparent white, and put in some streaks or veins with it, not very long nor broad, but running in the opposite direction to the green veins ; splash or spurt in a little white, and soften ; glaze in parts with red brown and dark green, around and in between the whites and transparent greens.

26.—BROCATELLA DE ESPAGNE.

This is a rich yellow marble, very much broken up into small patches, not very strongly marked. It is intermixed with patches of yellow and transparent white, with reddish purple lines in small

quantities, both light and dark. It may be imitated in the following manner:—Stippled white ground; mix a light buff oil colour, brush over your slab with this, using it sparingly; fold or screw up a piece of stiff paper, dip this into a colour mixed with burnt sienna and Indian red, and dab it over your work, using it lightly, if the paper is properly folded it will break up the work into small and large patches; do the same with a mixture of Oxford ochre, thin; now take a crayon made with Indian red and black, almost black, and with this break up the slab into small irregularly shaped patches, making the veins very fine; soften carefully; when dry, scumble with a feather and thin white; when dry, glaze in here and there with ochre and a little purple lake.

27.—BROCATELLA VIOLETE.

This marble is done in exactly the same way as the Spanish brocatella, but with this difference in working, that instead of using the burnt sienna as before named, use purple lake with a little blue and white in large quantities, giving it more of a violet hue and less of the yellow, in all other respects it is the same.

28.—BROWN BROCATELLA.

Brown brocatella is a somewhat similar marble to the foregoing, as its name implies, but is very much darker than either of the others. The mass of the marble is of a snuffy brown tint, with small and large patches of white, black, and a dirty green in it. It may be done as follows:—White ground; rub in with a colour made from Indian red and burnt sienna; lay this all over, and dab it with paper and a rag; then spurt in some turps to open it a little; now take a sponge, and dab in some small spots of black and a dark stone colour; open still further in small patches of white with a fitch; when dry, scumble a little with white and a feather, and touch up some of the blacks, &c.

29.—CONGLOMERATE.

Conglomerate is another marble somewhat like the last, but more patchy and yellower. It may be done as follows:—A light buff ground: brush over the slab with a semi-transparent colour made from Indian red and black, mixed with oil and quick size; rub in a little umber and ochre here and there; now take a tool and dip into clean turps, spurt in some of this to open it, using a rag to dab

it with where it is inclined to run; now open some patches with a fitch or pencil and turps; then take a deeper buff and put in some patches; do the same with a red brown, a black, and a stone colour; these patches must be of an irregular form and many sizes; when dry, scumble with thin white.

30.—ST. REMY BLUE.

This marble is very useful for bands, skirtings, &c., &c. Its prevailing colour is an agreeable tint of red, which seems to float upon a blue grey, intermixed with white, and is imitated in the following manner:—Ground colour, light grey of a bluish tinge, dry; now go over the whole of the slab with a thin bluish tint made from ultramarine, using the feather, putting in some touches of black at the same time; take a feather and flat white, and go over the previous work with it, not filling the whole up, but leaving the ground colour to shew as well; soften or blend them one into the other while wet; when dry, mix up a tint of solid colour of a reddish hue, made from Indian red and ultramarine blue and white; fold up a piece of rag, or paper, or cloth, in an irregular or ragged form; dip this into the colour, and dab it all over the

slab; now take a fitch or swan-quill, and connect the spatches of solid colour left by the rag with it, bringing it into form, leaving large and small portions of the white, grey, and ground colour showing through or under the colour; while wet, use a crumpled piece of stiff paper, and further break up the solid colour with it; its effect will be to take off the superfluous colour in places, and put it on in very minute portions in other places. You may make a very faithful imitation on this system. When dry, scumble with very thin white, and touch up with a darker shade of the red colour.

31.—BLACK AND GOLD.

Ground colour, a smooth black; place on your palette some white, Indian red, Oxford ochre, lead colour, and a little orange chrome; now use a large pencil, and take up a portion of the whole or part of these colours on your pencil, and roll it across or lengthways of the slab, leaving it in short irregular patches; now connect these patches together by fine lines in the previous colours; fill up the slab with irregular fine lines all running in the same direction, with short lines or touches crossing and connecting them; now use a dark lead colour, and fill in the spaces between the lines

with it in parts; then put here and there a touch of lighter lead colour; when dry, you may cut up the patches of colour with a pencil and black into a better form where required, and give them depth by glazing with white in places. Black and gold marble may also be done upon a white ground, as follows:—Use the same colours as for the first process, but in distemper (i.e., mixed with beer or weak size); brush over the work with these colours roughly, light and dark as you may fancy, mixing and softening them with the badger while wet; now use drop black in oil and a swan-quill, and put in the black, leaving all the larger veins untouched; when you have filled it all in, take a sharp pointed stick or piece of wood, and take out the fine lines with it, connecting them together, you take off the black with the point, thus leaving the coloured ground exposed; fill in with lead colour as before, and glaze with white.

32.—ST. ANN'S.

This marble is very similar to black and gold in the form of its veins and the filling in between, but the veins are much smaller and more crowded together. It may be done in exactly the same manner as black and gold, and in both ways, on a

black ground, using transparent and solid white alone for the veins, and fill up with lead colour; and on a white ground in distemper, picking in the black as before.

33.—DOVE MARBLE.

Ground, a bluish lead colour, worked wet; dip a feather into turpentine, then into a dark blue grey, and now and then into black, and streak the slab with this, running in one direction irregularly; use white in the same way; put in a few touches of solid white, and soften; when dry, scumble with thin white.

34.—DERBYSHIRE SPAR,

Or fossil marble, is of a dull greyish colour, sometimes having a purple hue, and full of the fossil remains of shell-fish, &c. It may be imitated by two methods—in oil and in distemper. The oil process is as follows:—On a dry white ground, brush over the slab with a thin glaze of a quick drying dull grey colour, made with ivory black and a little Prussian blue, add a little darker tone in places, or a little Indian red, according to fancy; now take a tool and spurt in some turps, to open it in small spots; use a rag to dab with; use the

rag and a pointed stick or stile, and wipe out the shells, &c.: they appear in all forms, some with the ends only seen, others lengthways, shewing halves, quarters, &c. You will understand exactly what I mean by looking at a specimen of the real. When dry, touch up the fossils with white, making some solid, others transparent. In the distemper process you will use the same colours, &c., on the same ground, but using the colours in distemper. Brush over the colour, putting in the darker colours as before; and while wet, spurt in a little turps, and dab as before. To form the fossils you will require some small stencil plates, cut out of tin foil or very thin sheet brass, which may be easily cut with a pen-knife, the patterns must be cut to the exact shapes of the fossils: place them on the work, damp the part of the ground seen through the stencil, and wipe out quite clean, about six or eight different patterns will suffice. These must be glazed as before. Or, instead of wiping out the fossils, you can use solid white and stencil brush, and stencil in the fossils. They may be quicker done this way, but are objectionable as standing up above the surface of the work. Of course, this may be done upon the oil ground as well as on distemper.

35.—KILKENNY BLACK.

A black marble with numerous small white fossils interspersed through out its substance. Black ground, put in the fossils with a pencil, they consist principally of small circles and half circles.

There are, of course, many other marbles besides those described. All of them may be done on one or other of the systems given.

There is an error you are liable to fall into without great care; it is one that many grainers do fall into. They paint all marbles alike in form, or so nearly alike that you can trace the same figures in all. This is a serious fault, and should be avoided, which can only be done by studying the characteristic features of each marble, and carrying them out in practice.

IMITATION INLAYING OF WOODS AND MARBLES.

SOME call this indented work, from the fact that one part of the wood or marble is cut away, and another wood or marble filled into the cavity, or indentation, thus forming an inlayed design. But we have here only to do with the imitations of this work. Any design, however intricate, may be so imitated that it will be a difficult matter to tell the imitation from the real wood, and when good taste is exercised in the choice of colour, with a judicious arrangement and contrast, very beautiful work may be done. A good design is the first thing requisite. What is meant by a good design is one that is well drawn, suitable, and capable of being executed in the real wood. All ornament in this style of decoration should be flat, as a rule; shaded ornament is, of course, sometimes introduced, but should always be the exception. Inlays of light and dark oaks, or pollard, light oak, and walnut, are good; but any number and variety of woods

may be placed in juxtaposition with propriety. It is also admissible to tint any light woods, such as maple, sycamore, &c., a blue, purple, green, or grey. This plan gives us a command of colour we could not otherwise obtain, and enables us to use more pleasing designs and on a much larger scale than before. On the other hand, with marbles the case is reversed; the difficulty is, not how to get a sufficient quantity of colours for the purpose, but how to select from the large number which nature has cast around in such profusion, every variety of tint, from pure white to pinks, yellows, reds, greens, purples, greys, and blacks, and all the intermediate tints, thus affording an array of colour and variety of character, suitable for executing the most rich and splendid designs. There are several methods of executing the imitation inlays of wood, and several kinds of medium or varnish with which it is done. Some use Canada balsam, others a mixture of any quick varnish with sweet oil or tallow grease; others again secure each wood with a coat of varnish; the latter method is objectionable, inasmuch as it causes the work to be uneven in surface, with thick or raised edges. The following process I have found to be the best adapted for the purpose. By it you may grain any number of

woods on the same panel, and yet all of them will be equal in surface, and sharp and distinctly cut, and clearly defined, and the whole of them may be varnished at one time. You will proceed as follows:—Grain in distemper the wood which occupies the principal part of the design; when dry, pounce the design upon it; now use a pencil and fill in the portion of the design you wish to remain; do this with Brunswick black, thinned to a proper consistency with naphtha or turps; this will dry in a short time; when dry, wash off the distemper with water and sponge; now grain in the next wood, and proceed as before, that is, pick in the portion of the design you intend to remain, wash off as before; proceed in the same way with any number of woods. When you have worked in all the woods contained in the design, take a soft brush and turpentine and soak the Brunswick black with it, gently rubbing the black with the brush; the black will soften and be ultimately washed clean off with the turps, leaving all the grained woods on the panel, clean, clear, and sharply defined, if properly done. The advantage of using the Brunswick black lies in the fact that it enables you to secure each imitation from being washed off or disturbed while you are graining the next wood, and in the

ease with which it is itself removed at the last; its perfect smoothness and freedom from grit causes the lines to be sharp and cleanly cut, which, of course, adds materially to the beauty and value of the work. In cases where a dark wood is grained upon a light one, the light wood may be grained and varnished first; if the light wood is in oil it will not require varnishing. The grain of the dark wood obscures the grain of the light one, so that even oak will form a good ground for pollard oak or walnut.

INLAYING OF MARBLES.

Inlaying of marbles is, of necessity, a different and a much more laborious process than for woods, and requires in some measure a different class of designs, broader, and neither so intricate nor so elaborate in form. It will be evident to the plainest understanding that thin veneers of wood will be much easier cut to any required form than marble would be, so that the designer, having this in mind, would naturally make a design that in the working would be best adapted to the materials used. We may observe here that if more attention was paid by designers to the nature and capability of the materials used, a great improvement would

be made and many mistakes avoided. It is usual to decorate vestibules and entrance halls with inlaid marbles, the designs for which should always be of an architectural character, and of a bold breadth of design; small niggling work shews a poverty of design and invention totally unsuitable.

All grounds for inlaid marbles should be got up with four or five coats of solid white, the last coat to be stippled. It is not only the best ground for the majority of marbles, but is necessary for another reason, which will be seen further on. Set out the design on the wall or panel, using very great care, for if the design is not correctly drawn at first starting, it will be exceedingly difficult to rectify afterwards. Make each line with the black lead. All circles or sections of circles must be run or struck from a centre with a needle and string, or with compasses. Now paint in your principal marble in exactly the same manner as hereinbefore described for executing that particular marble, taking care to encroach as little as possible beyond the line marked out for that marble. In doing this, you will find strips of paper of great use; they must be cut perfectly straight, and laid along the boundary line of the marble you are engaged

upon; this will keep the edges clean. Or, if it is a band or a broad line you are doing, a piece of stiff paper, with a strip cut out of it of the exact width of the band or line, may be used. You will also find strips of paper very useful for laying upon the floors against the skirting, to keep the floor clean. You will proceed with one marble after another, as may be most convenient. It is, of course, best to let one marble dry before you commence upon the one that adjoins it, as there is then less danger of encroaching one upon the other. As a matter of course, it will be understood that the instructions given how to do each marble, in the foregoing part of the book, will apply here. When all is dry and hard it will materially assist the deception. If a very fine line, about the width of a single hair, be drawn between each marble, exactly upon the joint, it will give it the effect of the fine hair joint you see in the real marble. This may be done best in the following manner:—Take a fine pointed pen-knife and a straight edge, place the latter upon the line; put the point of the knife with its back edge against the straight edge, draw the knife lightly along, taking off the upper colour, and leaving an exceedingly fine line of the white ground exposed. In this manner a much finer

line may be drawn than can be done by using a pencil, and perfectly straight and square, and of equal thickness. It will at once be seen that this cannot be done except the ground be got up a solid white. When there are curves or circles, a piece of wood or tin must be cut to the required form, as a guide for the knife; small circles may be done with a pair of compasses, with one leg sharpened.

It will be evident that in the execution of inlaid work, much care and a very great nicety is required. Never spare a little extra trouble or pains to turn out a job correctly and well: depend upon it, the credit and pleasure consequent thereon will amply repay you your trouble. The simplest or most unimportant part, if it is worth doing at all, is worth doing well. Bear this always in mind, and the result cannot fail to be beneficial in every way to you.

INTRODUCTION TO THE ART OF SIGN
WRITING & GILDING, WRITING, OR-
NAMENTING, & EMBOSSING UPON
GLASS.

SIGN-WRITING, as one of the useful arts, has been of considerable importance in all ages, and it would be a curious and interesting enquiry to trace its progress from the first crude symbols of the earliest and middle ages to our own time. It is now of universal use, and a workman having a good practical knowledge of sign-writing may earn a good living in any part of the civilised world. The introduction of writing and ornamenting in gold leaf upon glass is, so far as we know, of comparatively recent date, and is only as yet in its infancy as regards its application to the useful and ornamental arts; when its importance as a medium of decoration becomes fully known, it will, no doubt, be extensively used.

In the instructions here given the author has been careful to avoid amplification, as he feels con-

vinced that to surround the directions with a multiplicity of words would only tend to confuse instead of to enlighten ; he has, therefore, made a point of saying what he has to say in as few words as possible, in order that no mistake may be made.

INSTRUCTIONS FOR PRACTISING SIGN-WRITING.

The student will require the following tools, &c., for practising this art:—1st. A small board about three feet long and a proportional width, which he will prepare in the following manner:—If there are any knots in the wood lay over them smoothly a coat of patent knotting, or red lead mixed with glue size will answer the purpose ; now give it a coat of good lead colour paint, taking care that the paint is well strained through fine muslin or the ordinary strainer ; let it stand a day until it is quite dry, then rub down carefully with sand-paper, and stop up the holes, if any, with putty ; give two coats more of the same colour, using the paper between each coat ; now grind vegetable or drop black in boiled oil, add a very little turps, and about a tenth part of driers—sugar of lead or litharge are the best ; give the board two

coats of this colour, taking care to brush it on sparingly each time; if too much is put on it is apt to rise and blister when exposed to the sun's heat. It should be borne in mind, that according to the depth of colour will be the amount of heat each will absorb; black attracts and absorbs heat, and is in consequence more liable to blister than any other colour. Care should also be taken in painting to spread the colour as evenly as possible; you will best attain that object by repeatedly crossing and laying off, that is, simply to draw the brush straight down the board, then in the opposite direction, finishing by lightly laying it off straight up and down the board, until you obliterate all the marks of the brush; these remarks will, of course, apply to any other coloured ground. Your board being now prepared for writing, you will require a pair of compasses, a two-foot measuring rule, chalk line, rest stick, palette board and knife, a few sable-hair pencils, and camel-hair ditto. When purchasing the pencils, dip them into water and try them upon paper: if they retain a fine point they are good, if not, they are useless to you. Before you use them in oil colours dip them into turps, they will work much better in consequence, and always wash them quite clean when you have

done with them, as nothing spoils a pencil sooner than letting the colour dry in them. To gain a thorough knowledge of this, as of any other art, you must begin at the beginning, that is, you must begin by practising the simplest forms and lines of which letters are composed; by so doing you will become thoroughly acquainted with the fundamental principles of the art. Commence as follows:—Take your compasses and divide the board horizontally into equal spaces, about two or three inches apart, then with the chalk line strike lines from side to side of the board; now prepare white paint made with white lead and raw linseed oil, to a proper consistency, so that it will work freely; to hold these colours conveniently, you will require a tin cup with a piece of tin soldered to the bottom to slide upon the palette, and which you may purchase of any artists' colourman; hold the palette on your left hand, with your thumb through the hole; the rest stick in the same hand; dip the pencil into the paint, then on to the palette to take off the superfluous colour; place the soft end of the stick upon the board, rest your wrist lightly upon it, holding the pencil between the thumb and two first fingers of the right hand, and endeavour to form straight or perpendicular

and horizontal lines, curves, and circles; practise these incessantly until you can do them freely and correctly. You will then be able to commence practising the formation of letters, as in those lines are comprised the whole of the lines required in any description of letter. We will now suppose that you are able to form the lines freely, easily, and correctly. You will then proceed as follows:—Strike the lines as before; take a piece of pipe-chalk (i.e., unburnt pipe-stumps, which you may get at any tobacco-pipe maker's, or you can make them yourself from the pipe-clay), and lightly sketch out the alphabet in italics, or in text hand, or script, and endeavour to form them in outline; practise these until you can do them correctly, by so doing you will acquire the habit of making a free and graceful stroke or sweep with the pencil. This manipulative dexterity is only to be acquired by constant practice. You must practise the formation of these letters in outline only, using the point of the pencil; by this method you will gain rapidity of execution and correctness of outline. Many learners begin with the Egyptian letters, for the simple reason that they are the easiest; these never make really good writers, as by doing so they acquire a stiffness in the use of the pencil, and

formation of the letters, which they very rarely get rid of. The Roman capitals are the next that should be practised, then the Egyptian, &c. When you have thoroughly mastered the whole, you will then find it comparatively easy to write any description of letter. And here I would advise you, if you wish to become a good sign-writer, to practise and completely master one portion of the above before you commence another, as you will find it will materially assist your ultimate progress. Do not rest content until you have conquered every difficulty in the path.

SETTING OUT, OR ARRANGEMENT OF LETTERS ON SIGN-BOARDS.

This is a very important part of the art of sign-writing, for however good the shape of the letters may be, if they are not properly arranged the effect will be bad. By strict attention to the following rules you will soon be able to set out a sign properly, and with the best effect.

Rule 1.—It is always desirable (when practicable) to introduce into a sign a curved line or section of a circle, as it is pleasing to the eye, and relieves the stiffness of the straight lines.

Rule 2.—The space between each letter or letters must be equal, except in cases such as LA or LW, when they may be put a little closer to decrease the large space caused by the opposing forms of the letters.

Rule 3.—Each line of letters must begin and end at an equal distance from the edge of the board.

Rule 4.—Never, if you can possibly help it, begin or end a line of letters with such words as *and*, *to*, *for*, *with*, &c., &c., but let them come in between the lines of larger letters.

Rule 5.—Invariably make the most important words (such as the name, business, &c.) the largest, most easily read, and most distinct of any on the board.

Rule 6.—In setting out a sign, it is advisable to vary the character of the lines of letters, as the contrast between two lines of letters written in different characters relieves each other, and they are more easily read.

Rule 7.—Whenever you introduce a curved line, or section of a circle, the letters must have the same inclination as lines springing from the centre from which you have struck the circle or part of a circle.

Rule 8.—The strength or width of the thick stroke of a Roman letter should be about one-fifth of its height.

TO RAISE OR MAKE LETTERS APPEAR
TO START OUT FROM THE BOARD,
AND TO SHADE THEM.

For this purpose you require a knowledge of light and shade. To acquire this knowledge, so far as regards letters, I would advise you to get a few good letters cut out of wood, one inch thick; fasten these on a painted board, place them in a position where a side light will fall upon them. They will exhibit to you the true principle of light and shade. Study them well in all positions; they will be your best guide.

GILDING UPON SIGNS, &c., IN OIL.

There are several kinds of gilding. The water gilder, who puts a surface of gold upon metal, and throughout which process he uses tools and materials with which we have nothing to do here. There is also burnish gilding, which is divided into burnish and matt, or bright and dead gold. This kind of gilding is used for picture and looking-glass frames, &c. Oil gilding is the best adapted to

our purpose, and is in fact the only one that could be used. Oil gold-size is a mixture of Oxford ochre and old or boiled linseed oil, ground up together until it is very fine, and free from gritty particles, and requires very great care in its preparation. It may be purchased from carvers and gilders, gold-beaters, and artists' colourmen. It is sold in a state too thick for use, and it must be thinned or diluted with ordinary boiled linseed oil to a proper consistency for working with. Experience will alone direct you in this, and in using it either for letters or any other purpose it must be rubbed out very bare. Before using, it is advisable to strain about as much as you want, or are likely to use at the time, through a piece of silk. Your size being in working order, beat up the white of an egg, beat it up well with about four or five times its weight of pure cold water, until it is all in a froth; brush over the board with this, it will require to be well rubbed and covered all over, this is to prevent the gold leaf from sticking to any part but those parts where the gold size is laid on. When dry, set out the letters and commence writing. A sable pencil is best for laying on the size. Always remember that to make your gold bright you must use as little size as possible, con-

sistent with covering the letters properly. When you have got it all-written, let it stand until you can barely feel a slight tack or stickiness. Size is generally laid on one day, and gilt the next, but if it is really good size it will gild in a week after, except in very hot weather. Your size being now ready for gilding, you will require the gilding tools. These are, first, the cushion, a piece of flat board covered with flannel and washleather, with a parchment rim or border four inches high, and fastened around the half of two sides and one end, with a strap underneath for the thumb; the gold knife for cutting the gold; and the tip. These you may purchase of the dealers in gold size. All being now ready, put some gold on the cushion, which you will do in the following manner:—Take up a book of gold, turn back the paper, and gently blow the leaf of gold into the back part of the cushion, keep on until you have as many leaves as is convenient; you must be careful in doing this, or you will be likely to blow the whole of the gold out of the cushion. Now take the cushion on your left hand, with your thumb through the strap or thumb-stall underneath; the knife in your right hand; gently take up a leaf of gold from the back of the cushion with the knife, spread it upon the

front part as straight as you can, then give it a slight puff with your breath, holding your mouth directly over it, if this is done properly the leaf will open quite straight and level. Now decide what width you will require to cut the gold in order to cover the part to be gilt, and without waste, and cut it to the sizes you want, using the heel of the knife, and cutting forward; you will find it rather perplexing and difficult to do this at first, but persevere, and you will soon be able to do it easily and without waste. Now take the tip in your right hand, rub it on your hair or whiskers, lay it gently on one of the pieces of gold, which will adhere to the tip; lay this carefully upon the letter, cover the letters all over in the same way, cutting the gold into various widths, as may be required. In gilding several rows of letters, it is best to begin with the bottom row first, in order to avoid the roughness caused by the falling of small bits of gold, which are caught by the wet size of the bottom letters when the top rows are gilt first. The letter being now all covered, use a hare's foot or a ball of cotton wool, and press the gold gently with it, taking up the superfluous bits with it, and piecing up or faulting any places that may have been missed; rub gently with the hare's foot until

all is pieced up and level; let it stand for a few hours, then wash well with a sponge and plenty of clean water. The same process will, of course, answer for any article gilt in oil on paint. We sometimes use the gold from the book, when the work is in an exposed situation, as thus:—Tear off a leaf of the gold book, rub it upon your hand with the flat of your hand, so that all parts of it will come in contact with the hair, then lay it straight upon the leaf of gold and press it gently, take it up, and the gold leaf will be found adhering to the paper; now use a pair of scissors and cut it to the required size, and lay it upon the part to be gilt. If you wish to write and gilt a sign quickly, use Japanner's gold size. You must proceed in exactly the same manner as before, but as it dries quickly it will require to be gilt immediately; you may cause it to hold for an hour or two longer by adding a little of the oil size to it, which causes it to hold its tack for a much longer period. All inside work, such as etching capitals, enrichments, &c., in painted work, requires to be finished off with a thin coat of parchment size. Sometimes a little gamboge or ormolu is added to give the gold a deeper and richer tone.

INSTRUCTIONS FOR WRITING, GILDING. AND ORNAMENTS ON GLASS.

Before you commence this work you must acquire a thorough knowledge of sign-writing, otherwise it will be folly to attempt to do a glass sign. To do this work well you must attend strictly to the following instructions.

To prepare the size for gilding with you will require a small enamelled pan, holding about a pint, use pure water filtered through the best white blotting paper, the same kind as that which the chemists use for filtering, then boil the water well in the saucepan, carefully taking off with a clean tea-spoon any scum that may arise; put in a few shreds of the best Russian isinglass; when this is thoroughly dissolved the size is ready for use. Now clean the glass you are about to gild: you will know when it is quite clean by breathing upon it; if the moisture from the breath flies clean off without leaving any film behind, you may conclude that the glass is clean. The principal point

to mind, in order to get good burnish on the gold, is to take the greatest care that everything you use (*viz.*, the glass, the size, the brush, &c.), shall be scrupulously clean, if not, you will be sure to fail in making a good job. Having pounced your design upon the glass as described below, place the glass in an upright position, slightly leaning backwards; flow on the size with a flat camel-hair tin tool; now use the tip and cushion to lay on the gold with, and cover the design with it; put it away until it is thoroughly dry, then take some fine cotton wool, and gently polish or rub the gold until it is quite smooth; now quickly size over again, and piece up where required, or you can cover the previous gold with another layer. You will require a drawing on paper for each design, which you will prepare as follows:—Cut a piece of thin paper the size of the glass, draw out correctly the designs you require; prick through the outline of the letter with the pricker; tie up a little dry whiting or white lead in a fine rag or muslin, making a bag of it; place the drawing on the glass on the opposite side to that which you intend to gild, and with the right side of the drawing towards you; then gently dust or dab it over with the pounce bag; lift it carefully off the glass, and the design will appear

in white dots upon the glass; this is to guide you in laying on the gold. When it is gilt, repeat the process, but on the gold this time, and as the letters have to be written backwards, you must turn the drawing face-side downwards, and pounce as before, when the design and letters will appear as they have to be written; this will guide you in writing the letters. Before writing, blow off the superfluous dust. Brunswick black is the best medium for writing with, but if the gold is well sized behind, any quick hard-drying varnish will do. The black must be thinned with turps or naptha to a proper working consistency. When the writing is hard, wash off the superfluous gold with cotton wool and a little water, bearing in mind that you can sell the wool with the gold in it to the gold-beater, so it behoves you to take care of it. When washed off, then shade if required as in sign-writing, using colours mixed in Japanner's gold size, or any other quick and hard-drying varnish.

When ornaments or ornamental letters require etching or shading in the gold itself, you proceed as follows:—Pounce the design on the gold as before; then outline with a pointed stile of hard wood, taking the gold off the glass with it: you

can now either shade with the same point in straight or curved lines, or by cross hatching similar to the drawings for woodcuts, or you may use a tool made with a piece of whalebone tied fast to a wooden handle, the bone to be about one-eighth or three-sixteenths of an inch in width; before using it, rough it a little on a flag-stone or other rough surface. When you get accustomed to the use of this tool you will be able to shade quickly, softly, and with the best effect. When you have outlined and shaded it, then pick in the ornament with Brunswick or other black, which will, of course, appear in black lines wherever the gold is taken off with the stile or whalebone, leaving portions where required for the introduction of colour.

MIXING OF GROUND COLOURS FOR GLASS.

All the colours or paints used for glass must be of a hard drying nature in themselves, or mixed with varnishes which will dry hard and not crack; but for all glass signs that will be protected from damp or wet, the following is the best manner of mixing the backgrounds:—For white grounds, white lead ground in old milk, of course, any other

colour may be ground in milk, and used in the same manner, this being the best possible medium; it is not so liable to crack or peel off as size or varnish, and you also get a much purer colour in whites, emerald green, ultramarine blue, or any delicate tints, than you can get in varnish colour. To get a very deep tone of blue, grind ultramarine blue in linseed or nut oil, add sugar of lead to dry it hard; brush this over the glass, laying it as evenly as possible; use the badger-hair softener, and spread the colour with it until it is one uniform tint; when dry, give it a coat of pure ultramarine blue ground in milk. For a rich purple, glaze in the same way with crimson or purple lake, and ground with the blue. For all rich browns, use Indian red and black, or the various shades of Colgotha, either in milk or gold size and turps. Brunswick or vegetable black for the black grounds. Stencil patterns may occasionally be used with advantage as an aid in glass decoration. Coloured letters, ornaments, &c., may be stencilled on glass in solid colours, thereby saving much time. Black or brown letters and ornaments may be first stencilled upon the glass, which may then be obscured or frosted in imitation of ground glass. Sugar of lead ground in oil, or even white lead, used thin,

and stippled with a brush or a piece of flannel until it is regular and even in tone; a good imitation of ground glass may be thus obtained. Of course, any description of ornament may be used.

IMITATION OF STAINED GLASS.

In setting down here a method of imitating stained glass, it must be understood that we have no wish to encourage the practice of imitation staining as a substitute for the legitimate stained glass, although, in bad or dishonest work, the two are often combined. No system of imitation is durable, therefore it is totally inadmissible for important works, but there are many purposes for which it may be used, and from which we may derive pleasure at a comparatively small cost, which would otherwise be out of our power to enjoy. There are several kinds of imitations, such as the Diaphne, coloured paper, oil colour staining, &c. The method here described I have found to be the best for making a good imitation, and is done in the following manner:—Prepare a design in the manner before described. Ornamental designs for imitation stained glass should be of a similar character to those used for the real staining and painting. The designs being prepared, take a

sheet of ground glass, the size you want, pounce the design upon the glass as before described; now use a quick hard-drying black, and outline the design with it, putting in at the same time broad lines of black at the division of colours, or across those parts where the window or glazing lead would be in a real stained or painted window; this adds materially to the deception. When the black is dry, proceed as follows: suppose you want a mass of blue stain, mix ultramarine blue in water and a little milk; brush over the parts you wish to remain blue; use the badger-hair softener, and soften until it is of one uniform blue tint; when dry, take a pencil and a quick drying varnish, and saturate the blue with it; the varnish will sink through the colour and render it transparent. A very deep blue may be got by this method, one which could not be got, even in tone, by any other process we know of. For yellow, use either raw sienna or yellow lake. Two coats of colour and two coats of varnish may be given when you cannot get it deep enough with one. For crimson or ruby, use crimson lake or purple lake; in fact, any of the transparent colours may be used; but some of them may be used with water alone, such as burnt and raw sienna, and some of the lakes;

others, such as ultramarine, will require a little milk mixed with them, not too much, or the varnish will not penetrate through, and it will be cloudy. The colours must all be laid upon the ground side of the glass, leaving the glass uncoloured in parts, which will appear white. You may use oil colour in small quantities, in combination with the method described here. It will be evident that great breadths of colour may be used in this way, which would be utterly out of the question in oil colour. When varnishing the colour, use the varnish freely, so that it will thoroughly penetrate the colour. When complete, the work may be varnished all over; and if it is then glazed into the window frame, with another sheet of glass in front of the painting, and puttied in so as to hermetically seal it from the touch, or the influence of damp, it will last many years.

INSTRUCTIONS FOR EMBOSsing OR ENGRAVING UPON GLASS WITH HYDROFLURIC ACID.

This style of glass decoration is very extensively used for various purposes and in various forms, and is a useful aid in decorative art.

1.—It may be used for overlaid or flashed glass,

that is, glass on which a coat of coloured glass is laid on one side in the process of blowing. This, when embossed, will appear as a white ornament on a coloured ground, and if the ground is all eaten away, it will then appear as a coloured ornament on a white ground.

2.—The designs may be embossed upon plain glass, and the glass then may be ground with sandstone and emery. It will then present the appearance of a bright and transparent ornament on a dead white ground. Or the designs may be eaten out as before, and the letters or ornament gilt; but in gilding, it should always be borne in mind that an edge of gold or silver must be left upon the smooth glass at the edge of the embossed or sunk letter or ornament; this edge will appear of a bright burnish against the dead letters, or matt and burnish gold and silver.

In describing the process used, we will, for convenience of description, take the coloured glass as an example. The same process will, of course, apply to all other kinds. Glass may be etched or engraved in fine lines, in a similar manner to that used for etching on copper, using a different acid for the purpose, in this manner:—The glass must be coated all over with Brunswick black, with

a little white wax mixed with it, and turps or naptha, then pounce your design upon it, and use an etching needle or sharp stile, and scrape off the ground wherever you require a line to be eaten out. By this method you may etch almost as finely as an ordinary etching on copper, but when you require large letters or ornaments, you must use the pencil and Brunswick black alone, and write in the letters, if you wish to eat away the ground; and black in the ground if you wish to emboss the letters, taking particular care to stop out or cover up the whole of the glass, except where you want the acid to bite. Wherever there is the smallest speck or portion of the glass left uncovered, the acid will find it, and these make a hole, thus causing bad work. When your design is laid in, and dry, lay the glass flat on a bench or table, and put a raised border of wax round the edge to keep the acid from running over, (this walling wax is a mixture of white wax and Burgundy pitch). Now pour the acid upon the glass, and allow it to remain until it has destroyed the coating of coloured glass wherever it is uncovered with the black. While the acid is on, take a feather and examine it, to see what progress it is making, which you will do by brushing away the

acid in parts with the feather, which will enable you to see if it is going on right, or whether it is breaking up. If it is breaking up, small specks of the Brunswick black will rise when touched with the feather; if this is the case, the acid must be at once poured off, the plate washed, dried, and the bad places touched up. When it is sufficiently eaten away, the acid must be poured back into the bottles (gutta percha or India rubber), and the glass well washed with water. The Brunswick black may then be removed with turps or naphtha. You must be exceedingly careful not to inhale the fumes of the acid any more than you can possibly avoid, as it is very injurious to health. The acid varies in strength very much when purchased at different times, and before using will require to be diluted. Experience will best guide you as to its proper strength; if it is too strong its action is too rapid; and is more likely to break up the ground and make bad work, the weaker it is, and the longer it takes to eat it away sufficiently. You must also be very careful of dust getting upon or into the black, as it is apt to make it pinhole. It is always best to try the acid upon a waste piece of glass before using it upon the work. The gilding and colouring

required in embossed work will, of course, be done in the same manner as described in glass gilding.

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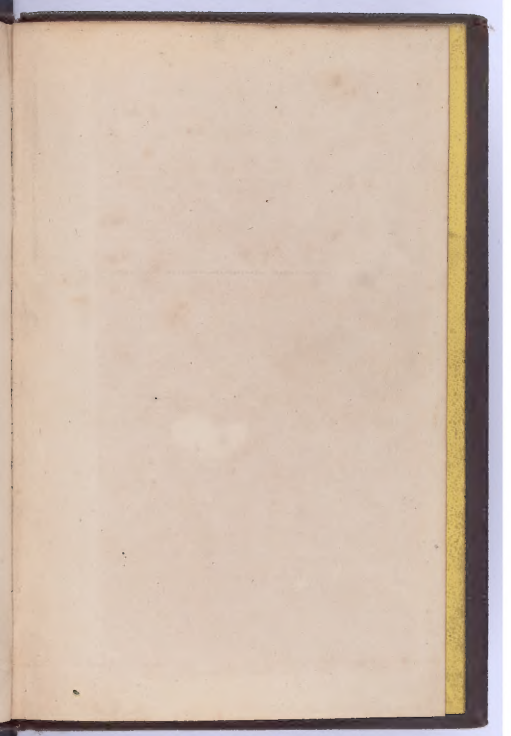
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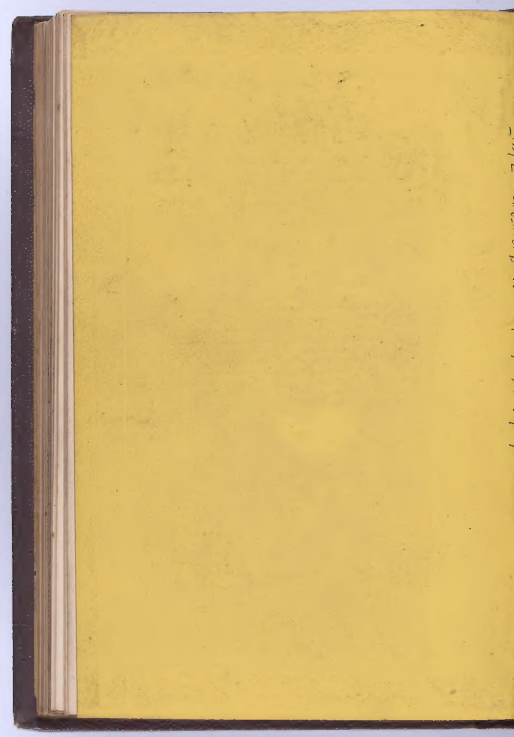
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